POPULAR Computing WEEKLY

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Vol 5 No 41

Amstrad profit soars to £75m

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Amstrad nets £75m profit from PCW

AMSTRAD turned in another spectacular set of figures last week showing profits up 273 per cent to £75 million for the year ending June 1986 Sales increased a mere 123 per cent to £304 million, indicating that Alan Sugar s ability to make lots of money is if anything, improving

The sales figures are accounted for by some 350 000 PCWs and 650,000 464s and 6128, 57 per cent of these being overseas France turned in growth of 173 per cent, and the company s market penetration in the rest of Europe also increased substantially US sales were a relatively feeble £17 million representing tens rather than hundreds of thousands of machines

The Amstrad PCW went on sale in the States in early summer of this year, but has failed to generate any enthusiasm like its predecessor 6128 which failed to revitalise the home/office segment of the lagging personal computer market in the US in 1985

The US s deplorable reluctance to return to the CP/M standard and take up using 3 inch discs has probably influenced Amstrad s decision to launch the new PC1512 at the Comdex show in November, although it s not due for release there until the spring and stock shortages may push this date back further



"It says I've just made £75 million "

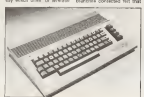
Sugar claims to have sold 100 000 PC1512s already although they re not due to be shipped until later this month, and was last week suggesting that production wouldn t keep pace with demand until June 1987 Dixons' waiting list only seems to be backed up into January but it's still difficult to see how Amstrad can launch in the States

The company's products so far have, however, been launched too late to catch growing markets in the US, and Amstrad must be conscious that this could also happen to the PC

Cool welcome for 64c in the high street

COMMODORE S new 64c is now in the shops, but it has yet to make it into the major multiples and appears to be meeting stiff competition from the old style 64 Commodore maintains that it will be available through the major high street chains but won t say which ones or whether negotiations have been completed

Dixons, Boots and W H Smith currently are not stocking the machines Dixons are to stock the machine shortly while Boots and Smith are for the present continuing to stock the old 64 Various branches contacted felt that there would be no shortage of the older – and £40–£50 cheaper – machine in the run up to Christmas



Glamorous 64 finds it tough

The 64c has made it into the independents, but is being sold alongside the older model, with London dealers Galeset, Hi Voltage and KK Stationers all quoting prices £30–£50 lower for the latter

At the time of the 64c s launch Commodore described the machine as 'a worthy successor to the 64 but the machine s high price tag plus the continued availability of the old 64 seem to be damaging its chances of taking over

It does appear that Commodore is currently in negotiation with the chain stores, and hopes still to get the new machines accepted Time, however is not on the company's side as the stores are now on the point of finalising their Christmas plans

Japan enters brand new trade cycle

THE failure of MSX to make an impact in this country was evidence that the Japanese weren t invincible after all But now, if the *Japan Times* is to be believed they re losing their grip completely

Sanyo has produced an electric tricycle called the Amorton Car, solar-powered and capable of a top speed of 15mph Sound familiar? Funnily enough it looks just like a certain other British-made trike

PC 1512 hard disc price

DISTRIBUTOR Northember a 20Mb hardcard for the Amstrad PC (see *Popular*, 25 September 1966) is to cost £618 A PC fitted with the card will cost a shade more than the PC1512 from Amstrad but the card is available now while hard disc versions of the PC are in short supply

Amstrad in ascendant

– show report

THE lull before the storm? The Amstrad show at London's Novotel last week was, as ever, well attended but with the PCW and its third party support already well-established and the PC yet to arrive in any great numbers there were few new products to gladden the hearts of owners and prospective owners.

That said there were signs that the PC wave is gaining momentum with numerous software houses showing budget products for the new machines. New Star, which cut its teeth on budget CP/M software, led the pack with dBase and Lotus workalikes for £99 and was also showing *PC Outline*, Brown Bag Software's excellent outline processor which it is selling in this country.

PC veterans Caxton Software and Software City were in hot pursuit. Caxton with a reduced price range retailored for the 1512 and Software City with *Ability* (see separate story). Cambrian Software has ported its business and accounting software range across to the PC, while Robtek was extolling the virtues of *Pyramid*, out for both PC and PCW at £99.95 and described as an easy to use integrated financial system.

Tasman Software probably broke two records at the show.

At £24.95 *Tasword PC* is one of the cheapest word processors available for the 1512, and it's almost certainly the first commercial program for the PC to have been first sold on the ZX81.

First prize for covering all the exits went to Timatic. The company's previous efforts include a 5¼ inch disc drive for the PCW, so there's a certain logic in its latest production – a 3 inch disc drive for the PC1512. It only needs someone to tell the company that IBM's started selling 3½ inch disc drives for its PC to make matters really confused.

The PC wasn't so well provided for on the comms side, although both Modem House and MML Systems were showing products. Modem House's is something of a rave from the grave, as the company has secured stocks of the old 1200/75 Prism 2000 and has revamped the comms software. It is however reliable and cheap, and works with the PC1512.

MML's production is *Straight Talk*, a communications package developed for the 1512. It includes a library of services and modems, plus a text processor for the preparation of ASCII files.

Back on the PCW Pace, producer of the official Amstrad modem for the PCW, was showing 5¼ inch drives for the machine and promising *Commstar PCW* shortly.

Despite the Amstrad takeover of the Sinclair name there was little sign of the new Spectrum Plus. HiSoft had one on display, while Kempston had produced a £6.95 interface for the machine's joystick interface (1) making the machine Kempston compatible.

Copy software and hardware (see page six) was in short supply following Amstrad's ban, but Romantic Robot appeared to have got round the problem with its Multiface 2. The device had been reconfigured for the show so that software copied with it is serialised. Copies can therefore only be used if the Multiface that produced them is connected to the machine. A harassed Robo man explained that it had been difficult to do this in time for the show, but that it appeared to satisfy the authorities.

Software Hotlines

Electric Dreams can hardly be accused of flooding the market with product since its establishment a year ago.

That, however, is set to change this Christmas, when the Southampton-based company will be hurling ten new titles, mostly over three formats each, at the unsuspecting consumer.

From a glimpse of the new range, we can say that all the releases are well worth a look, with attention paid to graphic detail and game play. A number are based on heavyweight licensing deals – these are the sort of contracts you can get when you're backed by mighty **Activision**.

First off the duplicating machines should be Commodore and Amstrad versions of a 3D maze/find the right objects/do the right things with them game. Your ultimate task is, as a synthetic human being, to rescue a baby from the inner complexes of the mechelabs.


Deep Space

Then there's the much-talked about *Aliens 2*, from the hit film sequel. Aliens 2 the film is a truly stomach-knotting tale of suspense and tension, and **Soft Machine**, the programming team, is aiming for the same effect here.

You get to control Ripley and the Marines through the control complex infested with aliens. Out November on Spectrum, Amstrad and Commodore.

One of the most interesting of **ED's** forthcomers is *Explorer* programmed by the **RamJam Corporation** which has come up with some pretty innovative stuff (remember *Valkyrie 17* and *Think!*?). Here you've landed on a strange planet and must collect pieces of your spaceship to put it back together and escape. Doesn't sound too innovative so far, huh? Well, the graphics showing the planet landscape as you move through it are gorgeous.

And let's not forget *Dandy* licensed from the original arcade game, not *Gauntlet* the coin-op game developed from *Dandy* which is US Gold's (we think that's all the right way round).

Dandy the computer game (are you still with us?) is also by **RamJam**, very fast, very colourful detailed graphics, hordes of nasties.

Also in the pipeline are *Big Trouble In Little China* (again from the film), *Chameleon* (an out and out shoot 'em up linked to the four elements earth, air, fire and water – you can shoot the air icon at the fire icon to blow it out, etc), *Star Raiders II* (from the coin-op), *Circus Of Death* (adventure/strategy/arcade) and *Hijack* (converted to C64 and CPCs from the Spectrum) and *Tempest* (more coin-operating).

Meanwhile, over on the ST **Psygnosis** is releasing *Deep Space*, an *Elite*-style space shoot 'em-up sporting highly impressive graphics. Your mission is to destroy the aliens and recover objects for the Corporation. The console includes pull down control panels for your on-board computer and a baffling range of scanners. Well worth a look. **Christine Erskine**

Amstrad ban on copiers at show

COPYING utilities were banned from last weekend's Amstrad Computer Show at the instigation of Amstrad itself. Organiser Database Exhibitions wrote to all show exhibitors at the end of September saying that "products designed to breach the copyright laws by producing pirate copies of a wide variety of software titles should not be available at our exhibition."

Database defines this sort of product as those allowing a program to be frozen for copying purposes, disc to disc copiers and tape to tape copiers. "Products which can do one or more of these, but not as their prime function, are usually quite acceptable."

It seems the relatively drastic action was taken in response to a threat from Amstrad to pull out of the show. "We were getting a lot of hassle and stick from people who write software under licence for us," says Mike Mordecai, software sales manager for Amstrad. "We could not be seen to be supporting companies who sell products that hack open other people's programs."

Database has the right to refer to the show as the Official Amstrad Computer User Show and the message seems to have been that if the ban wasn't initiated it would become decidedly unofficial, with the presence of Amstrad itself in doubt.

Mordecai doesn't accept that there is any legitimate use for copying devices and programs. "Personally I feel these sort of devices shouldn't be allowed on the market," he says, and points out that only a very small percentage of sales of, say, the 6128 represent users upgrading from the 464.

One of the companies affected has, however, reacted strongly to the ban. Gerry Bassingthwaighte of Mirage Microcomputers says he talked to Database about the matter after the previous Amstrad show in June, and was told there would be no difficulty. He denies that his product is a tool for piracy, pointing out that it needs to be present when the copied program is loaded back and, therefore, acts as a sort of dongle, and says he is currently investigating the possibility of suing Database.

"They decided in June but only told us about it at the end of September. No one from Database will tell people why we're not there and what we want to try and tell people is we're not out of business."

Sidecar to launch at £600 in UK

COMMODORE is as predicted to launch Sidecar, its PC emulator for the Amiga, in the UK in the next few weeks. The device, which allows the Amiga to run IBM software, is to cost around £600 on its own but is liable to work out cheaper if bought bundled with an Amiga.

The company, however, strongly denies suggestions that Sidecar's appearance here is a consequence of its failure to meet US electrical standards. Commodore insists that the device has in fact passed the US approval procedure, and is keen to scotch rumours to the contrary.

3D drawing on the CPCs

ARNOR is to release *Model Universe*, a 3D drawing system for the Amstrad CPC series, at the beginning of November. The program allows rotation on any axis, full perspective display and features a zoom facility. Drawings can be output to printer, disc or tape. It comes with a free copy of the *Gatecrasher* strategy game bundled and costs £15.95 for tape and £19.95 for disc.

The company is also to release its Protext word processing, mail merge, spelling checker and disc utilities package for the PCW and 6128 in November at £79.95.

Details from Arnor, 118 Whitehorse Road, Croydon CR0 2JF. Tel 01 684 8009.

Running soon – Protext

Proops goes for discounts on software

LONDON discount warehouse Proops Distributors has taken delivery of around 1,000 software titles for a range of machines, including the 64, BBC and Spectrum.

Prices and quality are distinctly variable, but examples include a 64 word processor of Canadian origin reduced to £30 from a list price of £86, and a Spectrum compilation pack down from £14.99 to £5.

Details from Proops Distributors, Heybridge Estate, Castle Road, London NW1. Tel 01-267 6911.

Rainbird boss leaves company and surname

RAINBIRD Software is to lose its founder and namesake, Tony Rainbird, who has resigned from Telecomsoft.

He is to leave next month, and Paula Byrne, currently Rainbird's marketing manager, will take over his position as head of Rainbird.

"I don't know what I'll be doing next," said Tony. "But I'll be staying in the micro software industry.

"Working within Telecomsoft has its constraints, and I'm keen to get out and see if I can progress – I won't know until I try.

"I've set up Rainbird much the way I wanted to, and there are no problems with the team. Everyone is very pleased that Paula has been selected for the post."

Rainbird – the software house – will keep its name, which is obviously a Telecomsoft trademark as well as belonging to its erstwhile boss.

Infocom to shed light on adventures

FOLLOWING the demise of the Adventurers' Club, better news for adventure fans with the announcement that Dave Lebling (MD at Infocom) has become Chairman of the long-standing fanzine Guiding Light. The zine has just gone bi-monthly and is available at £1 per issue from Roger Garret at 52 Micawber Way, Chelmsford, Essex, CM1 4UG.

Footnotes

AN eagle-eyed *Popular* reader spotted the first Spectrum Plus shipment (six) arriving in an Essex computer store last week. The date was September 30, so the machine was as promised in the stores by the end of September. People who shop in the multiples will, however, have to wait till the end of this week.

Meanwhile, Alan Sugar is suggesting that he could put up the price of the Amstrad PC in January to try to cut down on demand, but either the man's marketing expertise has left him or the suggestion should be taken with a pinch of salt.

Putting the price up now might shorten the waiting list, but won't a promised rise in three months stimulate demand further as people buy now while stocks last? By January, of course, Sugar will have 100,000 to shift each month to keep pace with production.


THALAMUS
ARMALYTE
By
STAVROS
FASOULAS
CBM 64/128
CASSETTE £9.95 DISK £14.95
THALAMUS LIMITED,
Front Office,
44 Wallace Road London N1
Distributed by US GOLD LIMITED, Unit 2/3 Holford Way, Holford, Birmingham B6 7AX Tel 021-356 3388

Product News



Sport portable PC

THE PC Sport is a semi-portable PC compatible designed to operate with either monitor or TV In the latter mode it uses an RF modulator to plug into a TV, and can, therefore, be used at home or in hotel rooms An LCD screen is also available for it as an option

The machine weighs 9lbs, runs an 6088 chip at 4-77MHz and includes RGB, composite video serial, parallel and joystick ports It has a base memory of 256K expandable to 640K, and has a single $5\frac{1}{4}$ inch disc drive built in Price for the base machine is £444

Details from Applied Microsystems Technology 32/34 Cricklewood Broadway, London NW2 3ET Tel 01-452 4256

Integrated pack for £70

ABILITY, Xanaro Technologies' highly regarded integrated package for the IBM PC, is now being sold in this country by Software City at £69 95 The package includes word processor, database, spreadsheet, business graphics, presentation graphics and communications software, all with a common command structure and the ability to move files from module to module

Details from Software City, 382 Kings Road London SW3 5UZ Tel 01 352 9220/6181

Micro training by mail order

EDUCATIONAL software supplier Microwise UK is now offering correspondence courses in computing The courses are aimed at both children and adults and are currently available for Amstrad CPC Spectrum Atari 800XL BBC B and Commodore 64 computers Subjects available include introductory and advanced programming, assembly language, graphics and applications

Details from Microwise UK, Freepost 468, Colchester CO3 4BR Tel 0206 575718

Pace set for PCW

PACE is launching a range of $5\frac{1}{4}$ inch disc drives for the Amstrad CPC and PCW machines Both versions give a CP/M formatted capacity of 600K and the CPC have the advantage of being able to read and write discs under both CP/M and Amsdos Both versions are also supplied with file transfer routines that allow MSDOS discs to be read by the Amstrad

Details from Pace Micro Technology Juniper View, Allerton Road Bradford BD16 7AG Tel 0274 486211

Low cost 64 disc drive

COMMODORE users who re having trouble getting hold of the 1541c disc drive now have another option – the Chinon Enhancer 2000 This drive is faster and more reliable than the 1541c and at a total price of £148 75 it's also cheaper

Details from Firstline Software, 206 Great North Road, Eaton Socon St Neots Cambs PE19 3EF (0480 213969)

Diary Dates

OCTOBER

25 October
20th ZX Microfair
Central Hall Westminster, London SW1
Details Sinclair machines hardware and software support
Price £1 50 adult, £1 children for advance sales £2 and £1 on the door
Organiser Mike Johnston, 01 801 9172

27 October
Computer Club 88
Blue Coat Comprehensive School Birmingham Road Walsall
Details Mainly Amstrad but includes a Sinclair corner
Price 25p
Organiser West Midlands Amstrad Users Group 021-420 1915

30–31 October
Hampshire Computer Fair
Guildhall Southampton
Details. Business computers
Price Free entry by business registration
Organiser Testwood Exhibitions, 0703 31557

NOVEMBER

7–9 November
Electron and BBC Micro User Show
New Horticultural Hall Greycoat Street London SW1
Details. Hardware software and peripherals for the Electron BBC micro and Master series
Prices £3 adults £2 children £1 discount for advance booking
Organiser Database Exhibitions, 061-456 8835

8 November
UKEUG National Einstein Show
National Motor Cycle Museum Birmingham
Details Einstein software and hardware
Price. Free
Organiser UKEUG 07982 2399

29 November
Wight Computing Fair
Ryde Town Hall Ryde IoW
Details Local show covering wide range of subjects
Price N/A
Organiser Wight Computing Users Group 10 John Street, Ryde Isle of Wight PO33 2PY

Prices, dates and venues of shows can vary and you are therefore strongly advised to check with the show organiser before attending. *Popular Computing Weekly* cannot accept responsibility for any alterations to show arrangements made by the organiser.



5 FUN FILLED GAMES
NOW
GAMES
NICK FALDO PLAYS THE OPEN
Mind Games
over the 18 holes of the Royal St George's course in Sandwich
SORCERY
Virgin Games
CODE NAME MAT II
Domark
the attacking Myon craft
EVERYONE'S A WALLY
wages safe
VIEW TO A KILL
Domark
code-breaking at Silicon Valley
NOW GAMES 2 is £8.95
COMMODORE SPECTRUM
NOW GAMES 5 is £8.95
Name
£9.95

Star Letter

Ahead in the 80s

A couple of years ago, my wife and I decided we really ought to drag ourselves into the 80s and we eventually ended up with a Commodore 64 disc drive and SG10C printer. We soon found that pure computing or computer games bored us and now we both use the equipment for word-processing (*Wordcraft 40*), and I take my chief pleasure otherwise in graphics, including text.

Most of my programs are now getting a little old. I would very much like to try some newer programs but all the shops and mail-order outlets seem to be preoccupied with games.

Is there a shop – preferably in the West End of London, or indeed anywhere else – that specialises in non-games. How do I find out, other than by spending a fortune on every computer mag on the market, just what is available, and where I can buy it, preferably after at least examining the manual, and better still, having a hands on trial?

Brian R Caukwell
Milton Keynes

We can't think of any shop which actually specialises in non-games in the West End, but Pilot Software City, in Rathbone Place, London W1, does stock a wide variety of products.

You've probably tried your local software retailers, but we understand that Softly, in the Milton Keynes main shopping centre, and Rams Computer Centre in Bletchley, are by no means solely games orientated.

Do keep an eye out for advertisements for utilities in magazines; and also nearly all software companies will sell their programs direct to customers, if you write to them asking for more details.

A label of thanks

Recently I decided to sort out my Microdrive cartridges. In doing so, I used up all my spare labels. I immediately rang Transform, which supplies Microdrive storage boxes. It referred me to its factory, which agreed to send me some labels.

The next day, I received 30 labels in the post. I would like to thank them, as the company does not sell labels normally, and for the fast service.

Simon Walker
Redditch

Trying to find a better way

In the Star Letter in the issue dated September 25, Alex Aird came up with a novel method of solving the problem I sent to Peek and Poke (*Popular* September 4).

As yet I have been unable to try this solution as I am in the process of moving, but if my memory serves me correctly even this will not work.

This is because bytes 66 and 67 of the header of an Amsdos disc file hold a file checksum. If Alex's method is used the checksum will be incorrect for the file contents and an error will occur when the file is read. My solution to the problem is to use the information stored in the directory entry for the file, coincidentally explained in Peek and Poke, Sept 25, to determine where on the disc the program is stored.

Then, using the disc Rom routine to read sectors from the disc, move the file contents in Ram. Finally, save the file as normal, using

```
SAVE "TEST.BIN", b, start addr, length
```

Note that the default load address may now be incorrect for the file contents. As Alex said if anyone knows a better way I would like to know.

S Hoel
Stafford

Take the high road to Glasgow

When are we going to see a major micro-computer show hosted in Scotland?

As most computer companies tend to operate from bases south of the border, I can't help but notice an annoying tendency on their part to refute acknowledgement of any place north of Manchester.

I realise that the population is more concentrated further south and that it may not be visible for one manufacturer alone to display its durables. An exhibition however, combining proportional representation of all major companies would be an unmitigated success, the magnetism of which would attract and appeal to a wide range of users with varied interests.

I am convinced that an exhibition of this type would generate considerable interest and enthusiasm among the Scottish user base.

It's not as though Scotland has no suitable venues. The city of Glasgow has poured a staggering £36 million into its showpiece, the Scottish Exhibition & Conference Centre (SECC), just for such purposes.

The potential of the SECC has already been realised by several areas of industry, not least the business computer sectors, whose Scottish Computer Show attracted an estimated 10,000 visitors over a three day period.

Part of the blame for the recent slump in the micro-computer industry must, I feel, be levelled at the companies themselves. If they fail to exhibit their products effectively, how can they expect to sell them?

I hope this letter will be instrumental in gaining some positive response not only from the industry in general, but also from exhibition organisers, and from the end users themselves, without whose support there would be no market.

Stuart Low
Alloa

Puzzle

Puzzle No 228

I recently acquired some coloured plastic numerals of the sort that you might use to display your street number on your front door. In the numerals that I had each of the different digits was made in a different coloured plastic, though every similar digit was in the same colour.

By taking a number of digits in red, green, blue and yellow plastic I was able to form the following multiplication:

RGGB x BYRG = Y . . . .

I have indicated the colour of each numeral by using the initial letter of the colour. The product so formed consisted of eight numerals, all of them of the colours already mentioned. I do remember that the first number was made of *yellow* plastic.

Can you find out the missing colours and say which digits they represented?

Solution to Puzzle No. 223

A maximum of ten primes can be found provided that the cards bear the numbers 27, 41 and 77. From these the following primes can be obtained: 2741, 2777, 4177, 7741, 7727, 4127, 274177, 277741, 417727 and 774127.

```
5 CLS
10 [illegible]
[illegible]
50 IF FL 1 THEN SM=SM+1
[illegible]
710 END
1000 [illegible]
```

Winner of Puzzle No 223

The winner this week is John R Paton of Paisley, Liverpool who will be receiving £10.

Rules

The closing date for Puzzle 228 is October 27.

Trying to find a printer

I read with interest Brian Haines letter (*Popular* September 18) concerning where to buy a disc drive and a small printer for the Oric Atmos He may like to know that WE Software, the UK agents for Eureka Informatique and Oric Products International has on sale the Oric/Eureka 3 inch disc drive with the powerful Sedoric DOS for £239 65 This is a special offer which ends on October 16

As for a small printer, WE offers the Brother HR5 Centronics printer for £126 50 He may also like to know that WE has word processors on sale – *The Author* at £14 50 and *Oricster* on 3 inch disc for £12 95

To any other Oric owners who read *Popular Computing Weekly* I woud like to mention my bi-monthly 16 page newsletter which I run, called *Your Oric*

Anyone interested in the newsletter can contact me with SAEs

K Thompson
41 Morden Gardens
Mitcham
Surrey
CR4 4DH

Trying to find a colleague

As a serious BBC Micro owner I've mastered both Basic and machine code I can boast to knowing the machine virtually inside out But despite this I've never actually completed any worthwhile programming project, the sort of thing that gets published in your magazine or by a software house

I find one of the main problems is getting enough motivation together to keep at it for the three months or so necessary to produce a number one hit

Anyway, to come to the point, this has given me an idea for a new user group for the Beeb and I'd be most grateful if you'd publish my address so that potential members can contact me

I hope to get together a group of programmers to combine expertise and perhaps work on joint programming projects, sharing the work-load involved If your readers are at all interested then I ask them to write to me for more details

Paul Phillips
13 Mountain Road
Conwy
Gwyned

Quilled again

As another *Quill* user, I echo the sentiments of Fergus McNeill in *Popular* September 17 The limitations of *GAC* means that an adventure written on the utility is instantly recognisable (even more so due to the amazing lack of an option to use an alternative set), whilst *Quilled* adventures still hold a certain amount of originality and freshness

With the advent of further modules to enhance *The Quill* system, I for one know which method of adventure writing I'll be using But let us remember that it is up to the imagination of the author to create a good adventure no matter how sophisticated the utility!

Craig Davies
Blackpool

NQNLQ

Many thanks for the letter from Andrew Bowmen of the improbable address, Drymen in Glasgow He wrote in your September 16 issue on manipulating printer line spacing from software to produce NQNLQ (Not Quite NLQ) as a useful intermediate print

My machinery is the Brother M1009 printer working with Spectrum or QL The M1009 control codes are Epson type I think that the attached routine I think proves Andrew s contention that his recipe can work with a variety of printer-computer mixes

```
10 REM ***PRINTER CONTROLS***
20 FORMAT "b";9600: OPEN #3;"b"; OPEN #4;"b"
100 FOR n=1 TO 3
110 PRINT #3;CHR$ 27;CHR$ 51;CHR$ 2;
120 PRINT #3;CHR$ 27;CHR$ 101;CHR$ 1;CHR$ 1;
130 GO SUB 1000+n*10
140 GO SUB 1000+n*10
150 PRINT #3;CHR$ 27;CHR$ 50;
160 PRINT #4: PRINT #4
170 NEXT n
199 CLOSE #3: CLOSE #4: STOP
1010 PRINT #4;"PARAGRAPH NO ONE NOW PRINTING."
1015 RETURN
1020 PRINT #4;"PARAGRAPH NO TWO NOW PRINTING "
1025 RETURN
1030 PRINT #4;"PARAGRAPH NO THREE NOW PRINTING "
1035 RETURN
```

Line 110 sets the shift interval to 2/216" Line 120 calls the vertical tab mode in which the line feed is now set at 2 units Lines 130 140 give the two passes over the current item of text at the different levels to give a transposed 2nd strike Line 150 is the code to re set line space to ⅙" to enable Line 160 to provide the space between items or paras

Changing the last value in line 110 from *Chr$* 2 to *Chr$* 1 will reduce the shift to one unit giving a double strike character with no more sign of the join than in Ernie Wise's hair-piece

The M1009 has its own command (*Chr$ 27,Chr$ 71,*) for double strike printing which will usually suffice but the DIY approach offers flexibility For instance, there is a useful enlarged combined-with-condensed print mode which gives eight characters to the inch with a nice increase of emphasis

The M1009 does not allow double strike with this combination This adaption of Andrew s recipe enables the added double strike and gives a very definite and not too spread out print very suitable for notice boards or emphatic sub-heading variety

To produce this particular face insert the following line -

```
125 PRINT#3 CHR$ 15 CHR$ 27 CHR$ 87, CHR$ 1
```

I would agree that following Andrew's idea should prove useful in filling gaps in the print controls provided ready made by the makers

G C Watson
Croydon

Racing along

I am moved by your review of Digital Integration s *TT Racer* (*Popular*, September 16) to do something which I normally avoid, namely to write and complain

Well, to be fair I don't really mean to complain but rather to point out an error or at least a lack of care in John Cook s review

He suggests that the program is far from realistic, because he was able to go round the track flat out and not crash If Mr Cook had changed the difficulty setting of the game from 'club' to, say, 'grand prix' he would have been able to report that the slightest contact with the kerb or lack of care in changing down before a corner results in the rider s premature demise

I cannot say how realistic the game really is – although I ride a motorcycle I have never taken a 500cc Suzuki around a race track The game does of course suffer from the lack of control inherent with a joystick but I find it very playable and well-detailed

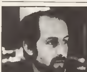
Try parking close to a corner on one of the more twisty tracks and watching the other riders come to grief, or wait just before the fourth from last bend at Jarama and see the others passing on the adjacent start straight The computer controlled riders are realistic, stopping at the pits and crashing at the bad bends

The big advantage over *Full Throttle* (the earlier Spectrum race game) is that the opposing bikes will always (well, nearly always) avoid you I found in *Full Throttle* that while I could manage the corners, it was almost impossible with a joystick to make the fine adjustments needed when overtaking other riders

A few tips for *TT Racers* use the road instruments because judging your speed is almost impossible Practice getting the right speed into corners If you are too fast or too slow you will weave about but with the correct speed the bike will lay over neatly and whip around the bend Try following the others to see how they do it

Sorry if this letter has run on a bit – there are not many computer games that I like so I get a bit carried away (usually, in *TT Racer*, on a stretcher)

M Beal
Sussex



Budgeting for success

Tony Bridge looks at a number of recent budget and near-budget adventure releases

Let s talk budget this week

I find the word budget rather misleading nowadays when applied to adventure – most £2 and £3 games are equally as good as most of the £9 ones, though of course there are exceptions to be made in the case of Level 9 s and the more expensive *Pawn* and the Infocom catalogue (some versions of which are a mere £10 and superb bargains not to be missed)

One of the first houses to produce budget adventures was Eighth Day Its *Quill'd* games half a dozen or so of which were released a couple of years ago at just 99p (though I see that inflation means that they are now £2 50) were all full of humour and tough puzzles and a certain amount of atmosphere, though the packaging was understandably austere

Since then they have been lying low but they are now back with a vengeance and *HRH* the game for all the (Royal) family ' Although you may at first think that this everyday story concerns a rather higher social stratum than yours, don t be misled!

The story starts as your weekly Giro cheque falls on to the mat — Great! Except that, oh dear, someone s boobed and you seem to have received not your own modest few quid but a more worthwhile quarter of a million! Well, you re an honest person (and you can t quite see how Ma am is going to manage to feed the corgis and horses with your measly pittance), so as a loyal subject you must of course return the cheque to its rightful owner at Buck House

The ensuing story concerns your adventures in achieving this very noble aim

The whole point of this little romp is to poke fun out of the Royal family, and this in a completely devastating fashion There is a lot of atmosphere in the locations which take the player round and round the West End of London, and the characters, both Royal and commoners are well-drawn and almost seem to live which is quite a feat in a *Quill'd* story

Patch'd and *Illustrated* with rather abstract pictures the game is well presented and the humour is pretty broad throughout, leaning heavily for inspiration on *Spitting Images* and displaying a neat way with puns

If you ve seen and enjoyed that series you ll probably find that the authors' sense of humour, relying as it does on Randy Andy, Phil the Greek, Corgis and large pink plastic ears may well coincide with your own

However there are problems first with the problems themselves which are rather convoluted with solutions which are not immediately obvious For example, near the start you must get drunk in order to get the pink elephant with which to bribe Prince William To do this you must visit a phone box three times and then convey, each time, a message to Prince Andrew at the Rocks-off night club These messages are to do with the results of certain tests which are of great interest to the Prince, who shows his gratitude by bribing you with the bubbly

Last the price – I know that I started by talking about budget games, but I m disappointed to see that Eighth Day have moved into the realms of £6 95 software and *HRH* is quite frankly not worth it At £3 or £4 I would have no hesitation in recommending it, but at this price I have to say that you should invest only if you, like the authors *really* want to take part in mocking the monarchy

Eighth Day 18 Flaxhill Moreton Wirral L46 7UH

And now to more *Quill'd* stories These two are from David Edgar of Scotland *The Dragon of Notacare* and *Treasure* cost just £2 50 each and are well-presented with a very neatly re-designed character set – but each is let down by appalling spelling (both title pages for instance displaying mistakes and silly ones at that, which should surely have been picked up by more than casual play testing)

Both titles give a fair indication of the games themselves (*Kill* the former and *Get* the latter), and really offer nothing that hasn t been seen in thousands of other adventures, which at least have the distinction of being first As usual, examining and searching every object and location pays dividends there are some neat little puzzles of course (otherwise, why would anyone bother writing an adventure?) but all in all I can t help thinking that with good budget software around like *Seabase Delta* and so on, scenarios and plots like these should be offered as a no-frills betabase at a realistic 50p or £1 David lives at 1 High Parksail, Erskine, Scotland PA8 7HY

ZZZZ (Mastertronic) on C64. What do I do once I reach the pit? The orchestra is waiting and I don t know what to do Michael Kukielka, 43 Clarendon Road West, Chorlton Cum Hardy, Manchester M21 2RN

Sored of the Rings on Spectrum. Any information concerning the third part would be most welcome Simon Amos 22 Albert Road Tonbridge Kent TN4 2SR

Red Moon on C64. How do I get past the watch dog and how do I cross the chasm? Also I can t get out of the first location of Robin of Sherwood Help! Stefan McGowan, 47 Hallgarth Circle, Kendal Cumbria LA9 5NU

Mordon's Quest on Atari 800XL. Where do I fill the aqualung and how do I open the barrier? Barbara Armitage, 46 Cinque Ports Avenue, Hythe, Kent CT21 6HP

Heroes of Karn on Amstrad CPC 464 Any tips and maps! Kirsty Nichol, West Green, Marwick Pirsay, Orkney KW17 2NB

The Soggit on C64. How do you get out of the first room? (I m new to adventures) C Swift, 55 Valley View Baildon Bradford West Yorkshire BD17 5QT

Adventure Helpline

Going bananas? If you are stuck in an Adventure with nowhere to turn do not despair – help is at hand

Fill in the coupon, explaining your problem, send it to us and a fellow adventurer may be able to help

Remember – the system only works if those adventurers who have solved the puzzles get in touch Every week is Save An Adventurer Today (SAAT) week!

Adventure .... on (Micro) ....

Problem ....

....

Name ....

Address ....

....

Golden Baton on Atari 800XL. What s the magic word to get the lump of quartz Peter Taylor, 13 Mackenzie Crescent, Burncross, Chapeltown nr Sheffield S30 4UR

Seabase Delta on Amstrad CPC 464 I cannot get the bowl and foil out of the refuse compartment, and I m not sure of the use of the chute I can t find the egg and I don t know what to do with the hen I have completed and can offer help or solutions on Jewels of Babylon, Heroes of Karn, Message from Andromeda and Red Moon (plus limited help with Seabase Delta) Christopher Eng, 14 Amner Road, London SW11 6AA

Planetfall on Atari. I have escaped the capsule and climbed the cliff but I can t work the lift Richard Gibbs 34 Garden Way Bootle, Merseyside L20 5LN

The Murel on Spectrum. Any help appreciated Alan Hughes, 22 Tyddynto, Menai Bridge Gwynedd

Hero of the Golden Talisman on C64 How do you use the Scroll spell Where is the key to the grey door? What is the flag for? Paul Crutchley, 25 Underhill Road, Upper Beeding Steyning, Sussex BN4 3JG

The Hobbit on Spectrum. How do I get Bard to follow me and kill the dragon Smaug? Hayden Price 98 Manor Road Deal Kent

Valnor's Lair on Oric 1. How do I get past Velnor (wearing washed calrog skin)? D Gomer 88 Danygraig Estate Graig, Pontypridd Mid-Glamorgan CF37 7N6

A program for programmers

A couple of weeks ago the perceptive John Cook posed the question "What apart from six quid, is the difference between a budget game and a full-priced game?" in the Ziggurat column.

Sanxion, the first offering from new publisher Thalamus, provides the perfect answer.

And the answer is hype – or presentation, if you prefer. It probably took an hour or two to write the code, and six weeks to do the graphics.

At first glance *Sanxion* looks a clear winner. The graphics are very pretty, the action is smooth and fast. Okay, so the sound effects aren't brilliant but you can't have everything, can you?

Well, the problem with *Sanxion* is that you can't have anything – except very pretty graphics.

It's a program written for other programmers. "Coo," they gasp, "sprites in the border." "Gosh, look at that split screen scroll." "Wow multi-speed scrolls on the foreground and background."

Unfortunately, it's boring. It's almost like *Scramble* – remember that? – with your ship moving from left to right and the aliens throwing things at you from right to left.

Occasionally, just to keep you awake, they throw something from behind you as well.

As you progress, the things change shape, sometimes they change speed, often they change their flight pattern. But always it's shoot 'em if you can, dodge 'em if you can't.

Now there's nothing inherently wrong with this. But we're back to that question: what's the difference between a budget game and this one? Simply: at £1.99 or £2.99 this would be extremely good value. At £10 all but five pence, I wouldn't give it house room.

Recommended for desperate shoot 'em up junkies only. On second thoughts, make that "rich desperate shoot 'em up junkies".

Popular Appeal ♦ ♦

Peter Worlock

Program *Sanxion* **Micro** Commodore 64 **Price** £9.95 cassette, £14.95 disc **Supplier** Thalamus, 1st Floor, Advance Works, 44 Wallace Road, London N1.

Gambling with your inheritance

Infogrames is making quite an impression with its early batch of releases. Following the unusual and impressive *L'affaire Vera Cruz*, comes the equally unusual *The Inheritance*.

What sets *Inheritance* apart from the usual run of graphic adventures is that the graphics are crucial. In this game you actually pick them and use them.

The scenario is a touch reminiscent of Torremolinos, you've been left a bundle of money but to claim it you have to get to the airport, make your flight to Las Vegas, and then win a fortune at the gaming tables.

You begin in your squalid little apartment and your first problem is what to take. Wallet certainly. Gun? Might be wise in a town like Vegas. But what about that cactus plant? Or the cat?

Having made your choice, you head for the street. And this is where things get really tricky. Immediately you set foot outside your room, your neighbours will be clamouring for the return of all their stuff which you've borrowed over the past months.

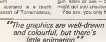
You can ignore them, but you'll lose precious time. You can threaten them with the gun, knife or axe – but that might get you arrested.

You see, you only have 20 minutes to get that plane. So, you go back to your room and get a new batch of junk and face your creditors once more.

Once you get to the airport, you're still not in the clear. There are numerous hazards to be overcome there as well.

The game is completely under joystick or cursor control. You pick up and drop items by positioning a cursor over them and pressing fire.

Ditto for opening doors, cupboards, drawers and so on.



The graphics are well drawn and colourful, but there's little animation and the change from scene to scene can be jerky.

The major problem, however, is in playability. I found the opening apartment block sequence frustratingly difficult. Eventually I decided that being rich wasn't worth the hassle and sloped off back to my room and stayed there.

The Inheritance might be worth investigating if you're an adventure freak, or just a games buff looking for a change from the usual.

But I'd strongly recommend you try before you buy.

Popular Appeal ♦ ♦ ♦

Peter Worlock

Program *The Inheritance* **Micro** Amstrad CPC **Price** £9.95 tape, £14.95 disc **Supplier** Infogrames, Mitre House, Abbey Road, Enfield, Middlesex EN1 2RQ.

A satisfying heap of bones

To everyone's surprise the Beeb has recently played host to half-a-dozen fine arcade games. Latest, and possibly best, is *Stryker's Run*, which combines lots of disperate ideas – *Moon Buggy*, *Who Dares Wins*, *Defender* – into a harmonious whole.

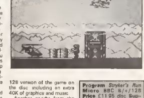
Most notable is the graphic design, which is excellent; the objects appearing on the horizontally scrolling screen are all nicely drawn although you will see a certain degree of flickering.

Your animated hero, Commander Stryker, has to get the secret plans through the enemy lines to headquarters, using his laser pistol, grenades, and friendly soldiers. Against him is ranged the might of the White Army consisting of soldiers, helicopters, minefields, and jets.

Stryker can jump over mines, duck under enemy shots, and run to avoid bombs from aircraft. Although getting hit loses you one of your nine lives, this isn't obvious unless you keep an eye on the "lives remaining" counter while enemy soldiers, when hit, collapse in a satisfying heap of bones.

Aircraft can be occupied and flown, although I always got shot down instantly.

All very good fun, added to which, shock horror innovation, there's also a Master 128 version of the game on the disc, including an extra 40K of graphics and music.



Another goodie from the increasingly excellent Superior Software.

Popular Appeal ♦ ♦ ♦ ♦
Chris Jenkins

Program *Stryker's Run* **Micro** BBC B/+/128 **Price** £11.95 disc **Supplier** Superior Software, Regent House, Skinner Lane, Leeds LS7 1AX

Bombs through the window

Alert! Alert! Mad dog, commie degenerate saboteurs have planted time bombs in the Gravitational Research Institute and reprogrammed robot guards to defend against intruders.

What can we do? Call in the droids – that's what. Your team of droids must roam from room to room searching for the bombs and then lob them out of a window.

It's not as easy as it sounds because many of the rooms are only connected by a portal, well out of droid reach. The answer to that is to throw the bomb from one droid to another through the portal and head for the exit before someone gets turned into droid paste. The first of the five buildings has rooms and floors arranged on a four by four basis. To further confuse matters there is a half functioning computer in each building which has hid its circuit boards scattered far and wide. Collecting and reinserting said boards repairs various functions around the building, like transporters.

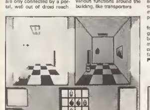
The varying gravities and orientations add difficulty to the arcade element. Controlling a droid while trying to get rid of a bomb when gravity is reversed can put you in a spin.

The graphics, represented on a screen showing two rooms at a time, are in high resolution and two colours only, which makes them look extremely ordinary.

Deactivators is not really an arcade game with strategy elements, it's a graphical strategy game. A lot of thinking will be needed to complete the five buildings.

Well, I have to say that I found this game lacking in graphics, music (a sub-Hubbard tune) and price (too much by half). It may be your cup of tea but *Deactivators* failed to activate me at all.

Popular Appeal ♦ ♦
Duncan Evans



Program *Deactivators* **Micro** C64 **Price** £9.95 (cassette), £14.95 (disc) **Supplier** Ariolasoft, 68 Long Acre, Covent Garden, London WC2E 9JH

Drunk on Zythum

The point of *Zythum* is to find some *Zythum* and drink it. And why not, you may ask yourself?

This drink then, is a magical brew and resides in the depths of a castle which can be found by passing through four different and dangerous lands. Dangerous? Well that's because of the appalling state of the highway in this part of mystic land.

Zythum reminded me of a graphically weak *Hunchback* with the need for accurate jumps over the bogs.

You've also got the guardians to contend with. These guardian chappies looked like oversized wasps to me but one sting, and you're dead.

Zythum is irritatingly (impossibly) difficult.

Popular Appeal ♦
Duncan Evans

Program *Zythum* **Micro** Spectrum **Price** £7.95 **Supplier** Mirrorsoft, Maxwell House, 74 Worship Street, London EC2A 2EN



Reversing through The Second City

Tony Kendle completes the tips for Mercenary – The Second City

Continuing with Christopher Hester's tips for *Mercenary – The Second City*, the rest of the hints are more specific than those given so far

When you find an object of worth such as the energy crystal, you are asked to deposit it in certain rooms for a reward There's always a Mechanoid room and a Palyar room to choose from Don't drop the object until you have saved the game because the reward you may get varies enormously For example the large box fetches a hefty 202600 credits in the Mechanoid stores, but only 25 credits in the Palyar stores

'To get the antenna you'll need to use one of the trigger rooms which change the layout of the complexes At the colony craft leave your ship in the hangar then proceed to the empty blue room to the north This is a trigger room but the game won't show any changes until you go back to the hangar – it looks as if your ship has been stolen! Also you can't use the elevator

However, you will find that there are a couple of new rooms south of the second dark room replacing the deadly skull and crossbones. (If when returning to the hangar you see your ship again then the layout has returned to normal More than one room acts as a reverse trigger for this layout so you may have to go back to the blue room)

Then you can go into the lift room through the six sided door, and instead of finding the top level there's a single room with the antenna in it

If you use the transporter room north of hangar ** 08 (in a brown room) then you'll find yourself in the green hangar at 3 08 but you've triggered the alternative layout!

Go through the door that normally leads to a dark room and you'll find instead an orange blank room with a very important key for you If, however, you've got the pass, this room also lies at the end of the maze at 08 **

'Make sure you save the game position regularly as there are many traps. One room features eight doors along the wall and seven of them lead to prison!

'In the orange blank rooms move in a definite line north east, west or south until you hit a wall Drop an object Then do the same for all of the walls You can then see the size of the room from the positioning of each object, which is very useful You can also find the door out more easily

To get through the maze west of hangar 13 08 enter the door then go in the following directions only – south south east, north, south, east, north, west If you get stuck drop objects to make sure you are in a different room

A word of warning – one of the transporter rooms will reverse all the city – east doors move to the west, etc, but north and south stay as they are! It's *very* confusing and makes mapping very difficult It may be that the effect itself can be reversed but as yet I don't know how The transporter is easily recognised because it turns orange for a second time when you enter it

To complete the game either make 999, 999 credits then use the communication room to hire a ship (assuming it's working) you need the antenna or steal the ship from hangar 8 ** and use the Novadrive to power it

If anyone can reveal the use of the coffin, the altered kitchen sink or any other tricks then you've beaten me

'Now here's an unbelievable cheat for users of the *Final Cartridge* from H&P Computers I have one of these permanently plugged in and it's really boosted my C64 Although the following tips are amazingly useful I only used it later on in the game for making an accurate map

'Load the game as normal then press *Restore* to freeze it Whenever you are in a dark room and do not own the photon emitter simply press *F7* for screendump from the *Final Cartridge* freeze menu Then *F1* and *F3* can be used to change the screen colours In a dark room you are really looking at black lines drawn over black walls By changing the colours you can make the lines any colour you wish so they show up You can use this to check the doors, your position and it is extremely useful at 3 04 to check the shape of the doors Any objects present will also be seen – try the hangar at 14 15 to see the ship

You are also able to see the walls in the orange blank rooms, which would be impossible even with a photon emitter

A warning though! Only use this cheat when you're not playing to get anywhere as the freeze menu corrupts the city above it Look in the dark rooms then reload the game and play it

Also when you hit *F7* to see the screen make sure you get the top two

Charts

Top Twenty

1	(1)	Paperboy	Elite
2	(–)	Druid	Firebird
3	(2)	Thrust	Firebird
4	(10)	Go for Gold	Americana
5	(9)	Trivial Pursuit	Domark
6	(4)	Super Cycle	Epyx/US Gold
7	(8)	Dragon's Lair	Software Projects
8	(3)	Speed King	Mastertronic
9	(12)	Ninja Master	Firebird
10	(13)	Jack the Nipper	Gremlin Graphics
11	(7)	Kane	Mastertronic
12	(5)	Ninja	Mastertronic
13	(6)	Dan Dare	Virgin
14	(–)	Alleykat	Hewson
15	(11)	ACE	Cascade
16	(–)	Storm	Mastertronic
17	(–)	Finders Keepers	Mastertronic
18	(18)	Glider Rider	Quicksilva
19	(15)	Warhawk	Firebird
20	(14)	Ghosts and Goblins	Elite



All figures compiled by Gallup/Microscope

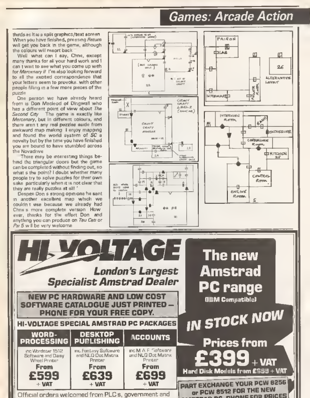
thirds as it is a split graphics/text screen. When you have finished, pressing *Return* will get you back in the game, although the colours will resort back.

Well what can I say, Chris, except many thanks for all your hard work and I can't wait to see what you come up with for *Mercenary II*. I'm also looking forward to all the excited correspondence that your letters seem to provoke, with other people filling in a few more pieces of the puzzle.

One person we have already heard from is Don Macleod of Dingwall who has a different point of view about *The Second City*. "The game is exactly like *Mercenary*, but in different colours, and there aren't any real puzzles aside from awkward map making. I enjoy mapping and found the world system of *SC* a novelty but by the time you have finished you are bound to have stumbled across the Novadrive.

"There may be interesting things behind the triangular doors but the game can be completed without finding out, so what's the point? I doubt whether many people try to solve puzzles for their own sake, particularly when it is not clear that they are really puzzles at all!"

Despite Don's strong opinions he sent in another excellent map which we couldn't use because we already had Chris's more complete version. However, thanks for the effort Don, and anything you can produce on *Tau Ceti* or *Psi 5* will be very welcome.



Einstein – as brilliant as the man?

Duncan Evans casts an analytical eye over Tatung's newest

The original Tatung Einstein can hardly be said to have set the micro world alight so Tatung is trying again with the Einstein 256, an upgraded and higher powered version of the original Z80 machine

Physically the new machine bears no relation to the old Einstein, with colour and shape changing And for the better at that What you now have is an Amstrad-style package with the computer receiving its power via the 14-inch colour monitor, and a built-in 3-inch disc drive as before One gripe to kick off with was the amount of non-flexible lead between computer and monitor, 17 inches is somewhat restraining

The keyboard has 48 alphanumeric/graphic keys eight function keys and 13 control keys arranged in a generally standard manner although the right hand side gives the impression of being squashed in Thankfully though the cursor keys are in a cluster on their own As far as quality goes the keyboard has a slightly cheapish feel to it but that in no way prohibits its use

A reset button, beyond the on/off button on the monitor is conspicuous by its absence but pressing *Alpha Lock*, *Ctrl* and *Graph* at the same time produces the desired effect So long as the software programmers haven t disabled them, of course

On the interface front the new machine has notably fewer sockets and plugs than before, seven in total These are the Vamp (Video mouse and light pen) edge connector monitor/power, audio out, cassette interface RS232 and two joy stick ports The joysticks are configured to accept a nine-pin D plug and also and most surprisingly, they double as a Centronics printer interface or user port! The ports may look like they ll accept Atari style joysticks but unfortunately they didn t work with any of the free games supplied in the package

Powering up the Einstein 256 reveals that this is a clean machine The master disc must be inserted and *Ctrl-Break* pressed to boot the Tatung version of CP/M Aha! I hear you say CP/M and 3 inch discs! Won t this load PCW programs, then?' The answer to that is, unfortunately, no Or not yet anyway

Tatung is working on a piece of software to enable you to run Amstrad CP/M programs When it comes up with a fully working program, as opposed to the one shown at the *PCW* show, it should enhance the Einstein s commercial viability by a not inconsiderable degree

"File handling is allocated an acceptable number of commands, one of which, Append, *allows you to write additional information to the end of a sequential file"*

The new look of Einstein

Once you've loaded up the Einstein's Basic, called Ebasic appropriately enough, you will discover that you have only 41852 bytes of memory to program in What about the rest of the 256K lurking beneath the machine s bonnet? Well, 192K is allocated to the video chip and the Rom has 16K of the CPU s 64K

With such a whopping great amount of video Ram available you would expect the machine to be capable of some pretty stunning graphics

Well, on paper it s capable of producing a 256 by 212 pixels bit mapped screen in 256 colours or 512 by 212 pixels in 16 colours from 512 Needless to say these modes gobble up the video Ram and are not compatible with the old Einstein

There are a total of 10 different modes which juggle resolution colours available active sprites and video Ram used When used in 80 columns the monitor gives a reasonable display which is perfectly readable for wordprocessing

Sound output is provided by a 1 watt rms speaker located at the bottom left of the monitor This is monophonic but there is also a stereophonic output, a 3-5mm jack which can drive low impedence headphones

The sound generator itself has three music channels and one noise channel in the manner of the BBC B and Amstrad CPC machines

And so to Ebasic the Einstein's version of Basic Once you ve loaded it up you will discover that you have only 41652 bytes of memory to program in Advocates of structured programming will not be happy with this marginally improved version of the old Einstein Basic as it supports only an *If Then Else* construct No procedures, no *Repeats Untils* and no *While-Wends Gosub* and *Goto* are present of course

The graphic commands available are reasonably comprehensive allowing ellipses (actually they're fixed shape squashed circles) points, lines and polygons with varying numbers of sides to be drawn These are all outlines of the shapes but there is a *Fill* command so solid shapes are easily attainable

Where the graphics do go beyond the norm is in the provision of hardware sprites and the commands to control them The shapes are defined using grids of eight by eight or 16 by 16 pixels and can be expanded by use of the *Mag* command There are 32 sprites available in all but there is the limitation or how many you can have on any particular screen line In Multi-colour and Graphics one and two modes only four are permissible while in the other graphic modes (not compatible with the old Einstein) you can have eight

The sound commands consist of *Beep Music PSG Tempo* and *Voice* enabling you to play simple tunes very easily To get anything more out you have to put correspondingly more in

File handling is allocated an acceptable number of commands one of which, *Append*, allows you to write additional information to the end of a sequential file thus avoiding the tedium of opening

it first and reading through till the end

String handling gets the usual *Left$ Right$* and *Mid$* although there is no *Instr$* style command for searching the contents of strings. One interesting ability is that of assigning an entire screen of text into a string which can be then manipulated, using *Scrn$*

Documentation is usually something that manufacturers think about last of all (cf Commodore) but the manual which Tatung supplies features all sorts of interesting and comprehensive facts and details. For the really technical stuff there's a fair amount of wading to be done to get to the nitty gritty and some things are uncomfortably vague but otherwise it's a very helpful tome.

Below close ups of the Einstein 256 interfaces



Well, there you have it. The Tatung Einstein 256 has good graphics potential, reasonable sound and average keyboard – a neat all in one package

The only problem is that it's competing in the heart of Amstrad territory with a small business/games machine design. With the release of the Amstrad PC 1512 in exactly the same market the Einstein 256 will be very hard pressed to compete on the same terms

If it's less of a games machine and more of a serious machine you're after than there's the well established PCW 8256/8512s. And going the other way the CPC 6128 with the same system components as the Einstein has a more games-related software base

The Einstein 256 is a good machine but unless Tatung commissions some outstanding software to make use of the extra memory and graphics potential and I mean the sort of outstanding that gets people talking about it, then I can't see it competing at this price with the plethora of Amstrad machines

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SPECTRUM	rrp	[illegible]	COMMODORE 64	rrp	[illegible]	AMSTRAD	rrp	[illegible]
Pyjamarama	[illegible]	[illegible]	Pyjamarama	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Dun Dare	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Dragon's Lair	[illegible]	[illegible]	Dun Dare	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Cauldron II	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Sweevo's World	[illegible]	[illegible]	Trivial Pursuit	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Heavy on the Magick	[illegible]	[illegible]	Dragons Lair	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Jack The Nipper	[illegible]	[illegible]	Heartland	[illegible]	[illegible]	Room 10	[illegible]	[illegible]
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Green Beret	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Kung Fu Master	[illegible]	[illegible]	S.F. Harrier	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Zoids	[illegible]	[illegible]	Paper Boy	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Biggles	[illegible]	[illegible]	Cobra	[illegible]	[illegible]	S.F. Harrier	[illegible]	[illegible]
Laser Genius	[illegible]	[illegible]	Highlander	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Pyracurse	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Trivial Pursuit	[illegible]	[illegible]
Sam Fox	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Batman	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	Highlander	[illegible]	[illegible]
Ghosts and Goblins	[illegible]	[illegible]	COMMODORE 64/128			[illegible]	[illegible]	[illegible]
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Atlantic Challenger	[illegible]	[illegible]	Knight Games	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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Time for the game machines

Andy Pannell dissects the new Spectrum Plus 2

The new Spectrum Plus 2 is a nice improvement over the ordinary Spectrum 128 in most ways. The most obvious differences are that it's not black (it's grey) and the keyboard looks reasonable.

While the keyboard has exactly the same layout as the Spectrum Plus and 128 machines (except that the Extended key is bigger) it is much nicer to type on. It feels similar to the Amstrad range for obvious reasons, though feels more cramped, and of course keys such as , and are in the wrong place. It's definitely better than any previous Sinclair keyboard and is good in all respects, except that most of the keywords used in 48K Basic are missing. The exceptions are the *Run*, *Load* and *Code* tokens. All the others have gone, including some non-tokens like |] and ©.

The built-in cassette player is to the right of the keyboard, and makes loading and saving programs a whole lot easier, with no leads to muck about with and no fiddling of level controls. The machine is designed for the games market and to load a 128K game couldn't be easier – press Cursor down a couple of times to get to the *Tape Load* menu and press *Return*, and that's it. The white legends on the cassette buttons were wearing thin on the review machine and didn't look as if they'd last very long.

The machine has all of the sockets of the 128, including the standard Spectrum edge connector, reset switch, RS232/Midi socket, TV and RGB socket, but in addition offers a sound socket for amplifiers (even though it comes through the TV as well) and two D-type joystick sockets. Unfortunately the pin-outs of these are entirely different to the standard, following the old Sinclair standard (as used on the Interface 2) rather than the more common Kempston or cursor-key formats. It would seem that compatible Sinclair joysticks will be bundled with the machine from at least some retailers.

Inside the case there is a completely new PCB, containing mainly familiar components. The cassette mechanism has a small PCB on it and connects via proper sockets. The quality of the keyboard connectors has also been improved by the designers at Brentwood. While the word Amstrad doesn't occur at all on the outside of the machine, it can be found at least five times on the inside!

The Rom itself is in two parts – there's the copy of the original 48K Spectrum Rom and the extra one containing the screen editor and code to access the new hardware. The old part of it is identical to its counterpart in the 128 excep that the copyright message has been replaced with a very short © 1982 Amstrad and the Record message in the tape routines has been changed. Any programs that run in 48 mode on the 128 will work on the Plus 2. The 'new' part of it is slightly changed from the 128 version, because of an extended Amstrad copyright message and the removal of the Tape test routine. Because of these changes some programs which access the new Rom directly in the 128 will not work unmodified on the Plus 2. The officially defined entry points have remained though, and games that have no need to call anything else and should work without any problems.

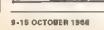
The Spectrum 128 has compatibility problems with quite a few 48K games and these have not been fixed on the Plus 2, which is a great shame. It would have been an easy job to make the Plus 2 much more 48-compatible by removing some of the redundant code from the new part and replacing it with the code that causes the problems from the modified old Rom. Oh well, it's a bit late now.

The Spectrum Plus 2 keyboard

In 48K mode most games should work, though older ones do have problems, but programming in 48K Basic is near impossible because all of the tokens have disappeared from the keyboard. Although I was surprised how well I could remember the positions of the more common tokens, even an old hack like me got stuck on the lesser ones and had to reach for a nearby Spectrum. Anyone who doesn't know the Spectrum keyboard very well can forget programming in 48K mode, and use the screen editor in 128K mode instead. It's better in most ways, and you don't need the tokens for it. The only snag it has is that it has a nasty habit of losing key presses just after running a program or a direct command.

All Sinclair add-ons, including the Microdrives work with the Plus 2, although unmodified third party add-ons will have problems if they have Roms. I was hoping to find some code in the Rom for a disc interface, but I was disappointed. It is rumoured that there will be an official Sinclair/Amstrad one at some point though, which would be good. The Spectrum really needs a standard disc interface that all programs can use, instead of the plethora of incompatible ones there are at the moment.

All in all the Plus 2 is a nice version of the Spectrum 128, and will run most games admirably. The built in cassette recorder is very useful, and the keyboard is definitely the best Sinclair production. The CPC464 and the ordinary Spectrum 128 look doomed.



How did you manage without a macro?

Macro Manager is a desktop accessory program licensed by Robtek from the American company Shenner International Corporation

The facilities offered are calculator, cards, events, alarms, notes plan report and type

The calculator has 20 functions and the ability to print calculations as they are computed However, most of the functions are fairly standard and provide most things you d expect from a run-of-the-mill calculator It has to be said that the one in *Cornerman* from Microdeal offers a good deal more than *Macro Manager* does One original feature is the calculation of monthly payments based on information inputted

Cards and events are essentially the same thing and enable you to define name, telephone number and three other fields of information The cards can be sorted and printed, searched and replaced Also if you have a Hayes compatible modem there is an auto-dial facility

The alarm function allows one or more alarms to be set up with individual messages and repeat options Assuming you leave your ST on all the time then you can be buzzed with the same message every week month or year

The notepad allows various messages to be scrawled down and stored on disc for later recall and possible printing A maximum of four pages of text can be entered in one file

The weekly planner function provides five lines of short text per day for each week defined and can also have important events flagged to the alarm system so that on the relevant day your ST will start bleating until some acknowledgement is received Also available for use with the weekly planner is the time analysis report which enables you to identify how much time is spent on individual projects each week Then, daily or weekly totals can be displayed and printed out for a specified time period

The last facility on offer is Macrotype which effectively turns your ST into a typewriter All text entered is formatted by centring justification and tabs and sent straight to the printer

Surprisingly there are no fillers in *Macro Manager*, all the functions are actually useful and the memory overhead starts at a reasonable 70K If you re interested in this sort of program then this one can be heartily recommended

Duncan Evans

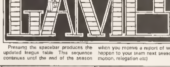
Program *Macro Manager* **Micro** Atari ST **Price** £29 95 **Supplier** Robtek Limited Unit 4 Isleworth Business Complex, St Johns Road, Isleworth, Middlesex. TW7 6NL



The truly useful executive toy

Soccer

by Mark Slater



Part two of three of the listing follows this week as well as further instructions

After you have selected which players are going in the team pressing P starts the next match. Running commentary is given throughout until the final whistle when all the other results in the division are given.

Pressing the spacebar produces the updated league table. This sequence continues until the end of the season when you receive a report of what will happen to your team next season (promotion, relegation etc)

```
1770COLOUR129:COLOUR0
1780ENDPROC
1800REM**** PRINT DIVISION DATA ****
1810
1820DEFPROCdivision
1830PRINTTAB(7,3);"TEAM";TAB(16,3);"Pld";TAB(20,3);"Won";TAB(24,3);"Drw";TAB(28,3);"Lst";TAB(32,3);"GD";TAB(36,3);"Pts"
1840tab=2
1850FORcount=1TO12
1860IFcount>9THENtab=1
1870PRINTTAB(tab,3+(count*2));count
1090NEXTcount
1890FORcount2=0TO11
1900IF order(count2,0)=team THEN PROCon
1910PRINTTAB(4,(count2*2)+5);team$(order(count2,0))
1920PROCoff
1930FORcount3=1TO6
1940PRINTTAB((count3*4)+12,(count2*2)+5),data(order(count2,0),count3)
1950NEXTcount3
1960NEXTcount2
1970ENDPROC
1990REM**** DRAW LINES ON TABLE ****
2000
2010DEFPROCdraw
2020CLS
2030division$="Division "+STR$(division)
2040PROCdouble_height(division$,15,1)
2050GCOL0,0
2060FORline=944TO112STEP-64
2070MOVE18,line
2080DRAW1262,line
2090NEXTline
2100MOVE18,944:DRAW18,112
2110MOVE110,944:DRAW110,112
2120FORline2=494TO1304STEP128
2130MOVEline2,944:DRAWline2,112
2140NEXTline2
2150ENDPROC
2170REM**** ENTER TEAM CHOICE ****
2180
2190DEFPROCchoose_team
2200REPEAT
2210CLS
2220PRINTTAB(1,2);"THE CHOICE OF TEAMS IS:"
2230team3=-1
2240REPEAT
2250counter=0
2260REPEAT
2270team3=team3+1
2280counter=counter+1
2290PRINTTAB(12,counter+4);team3+1;".";TAB(16,counter+4);league$(team3);SPC(10)
2300UNTILcounter=12
2310PROCspace
2320UNTILteam3=47
2330PRINTTAB(1,30);SPC(35)
2340INPUTTAB(3,18);"ENTER CHOICE";choice$
2350team=INT(VAL(choice$))
2360IFteam<1ORteam>48THENPRINTTAB(1,20);"ENTER A NUMBER FROM 1 TO 48";TAB(16,18);SPC(40):GOTO2340
2370team=team-1
2380PRINTTAB(1,20);"THE TEAM YOU HAVE CHOSEN IS: ";
2390PRINTleague$(team)
2400PRINTTAB(12,24);"IS THIS CORRECT"
2410REPEAT
2420input$=GET$
2430UNTILinput$="Y" OR input$="N"
2440UNTILinput$="Y"
2450name$=league$(team)
24b0league$(team)=league$(36)
2470league$(36)=name$
2480ENDPROC
2520DEFPROCspace
2530PRINTTAB(7,30);"PRESS 'SPACE' TO CONTINUE"
2540REPEATUNTILGET$=" "
2550ENDPROC
2570REM****** UPDATE DATA ******
2580
2590DEFPROCalter
2600y=13
2610FORcount5=0TO11:data(count5,1)=data(count5,1)+1:NEXTcount5
2620data(team,5)=data(team,5)+(score1-score2)
2630data(match,5)=data(match,5)+(score2-score1)
2640IFscore1>score2 THEN data(team,6)=data(team,6)+3:data(team,2)=data(team,2)+1:data(match,4)=data(match,4)+1
2650IFscore2>score1 THEN data(match,6)=data(match,6)+3:data(match,2)=data(match,2)+1:data(team,4)=data(team,4)+1
2660IFscore2=score1 THEN data(match,6)=data(match,6)+1:data(team,6)=data(team,6)+1:data(team,3)=data(team,3)+1:data(match,3)=data(match,3)+1
2670check=3
2680check(1)=team:check(2)=match
2690REPEAT
2700team1=RND(12)-1
2710flag2=0
2720FORloop=1TOcheck:IFcheck(loop)=team1 THEN flag2=1
2730NEXTloop
2740IFflag2=1THEN2700
2750check(check)=team1:check=check+1
2760team2=RND(12)-1
2770flag3=0
2780FORloop=1TOcheck:IFcheck(loop)=team2 THEN flag3=1
2790NEXTloop
2800IFflag3=1THEN2760
2810check(check)=team2:check=check+1
2820league1=RND(5)-1
2830league2=RND(5)-1
2840data(team1,5)=data(team1,5)+(league1-league2)
2850data(team2,5)=data(team2,5)+(league2-league1)
2860IFleague1>league2 THEN data(team1,2)=data(team1,2)+1:data(team2,4)=data(team2,4)+1:data(team1,6)=data(team1,6)+3
2870IFleague2>league1 THEN data(team2,2)=data(team2,2)+1:data(team1,4)=data(team1,4)+1:data(team2,6)=data(team2,6)+3
2880IFleague1=league2 THEN data(team1,6)=data(team1,6)+1:data(team2,6)=data(team2,6)+1:data(team1,3)=data(team1,3)+1:data(team2,3)=data(team2,3)+1
2890result1$=team$(team1)+" "+STR$(league1)+"  "+STR$(league2)+" "+team$(team2)
2900tab1=17-LEN(team$(team1))
```

```
2910PROCdouble_height(result1$,tab1,y)
2920y=y+3
2930UNTILcheck=13
2940ENDPROC
2960REM*** SORT TEAMS INTO ORDER ***
2970
2980DEFPROCsort
2990FORcount7=0TO11:order(count7,1)=(data(count7,6)*1000)+data(count7,5):order(count7,0)=count7:NEXTcount7
3000flag=0
3010FORpass=0TO10
3020IForder(pass+1,1)>order(pass,1) THEN A=order(pass,0):B=order(pass,1):C=order(pass+1,0):D=order(pass+1,1):order(pass,0)=C:order(pass,1)=D:order(pass+1,0)=A:order(pass+1,1)=B:flag=1
3030NEXTpass
3040IFflag=0THEN ENDPROC
3050GOTO3000
3070REM****** TITLE PAGE ******
3080
3090DEFPROCtitle_page
3100COLOUR129:CLS
3110VDU28,1,4,18,1
3120COLOUR131:CLS
3130VDU26
3140VDU19,0,4;0;
3150COLOUR0
3160PROCdouble_height("ELECTRON SOCCER",2,3)
3170under_line$=STRING$(16,CHR$(255))
3180PRINTTAB(2,4);under_line$
3190VDU26,1,21,18,6
3200COLOUR131
3210CLS
3220PRINTTAB(1,1);"OPTIONS:"
3230under_line$=STRING$(8,CHR$(255))
3240PRINTTAB(1,2);under_line$
3250COLOUR1
3260PROCdouble_height("1.  Instructions",1,5)
3270PROCdouble_height("2.  Choose Team",1,8)
3280PROCdouble_height("3.  Start Game",1,11)
3290PROCdouble_height("4.  End Program",1,14)
3300COLOUR128
3310COLOUR2
3320VDU28,1,30,18,23
3330CLS
3340PROCdouble_height("ENTER CHOICE",3,4)
3350VDU19,2,11;0;
3360ENDPROC
```

Programming: Spectrum

Ram Disc Utility

by D Garner

Using this program you can utilise the Spectrum 128's *Ram* disc. There are six options, as follows.

1 Transfer a Basic/machine code program or screen picture from tape onto the *Ram* disc

2 Quits the program

3 Allows you to load, in the normal way, a program of screen. Note that this option and option 1 use *Merge* so make sure that the program being loaded has line numbers under 9000

4 Saves the current program in memory on to tape. When loading or saving machine code the start address and length has to be defined

5 Displays a catalogue of the *Ram* disc to the screen

6 Displays the same catalogue as above but to the printer using the *Copy* command

If you don't wish to type the program in then send £1.75 for a tape to D Garner, 67 Lovers Walk, Dunstable, Beds LU5 4BG

```
9000 REM ******************
9005 REM *RAM DISC UTILITY*
9010 REM *FOR SPECTRUM 128*
9020 REM *BY DANIEL GARNER*
9025 REM *  SPECTRUM 128  *
9030 REM ******************
9040 BORDER 6: INK 6: PAPER 2: CLS
9050 PRINT AT 1,11;"SPECTRUM 128"
9060 PRINT AT 2,12;"RAM DISC"
9065 PRINT AT 3,12;"UTILITY."
9070 PRINT AT 5,2;"OPTIONS"
9080 PRINT AT 7,3;"1 . TAPE TO RAM TRANSFER"
9090 PRINT AT 9,3;"2 . QUIT THE PROGRAM"
9100 PRINT AT 11,3;"3 . LOAD PROGRAM FROM TAPE"
9110 PRINT AT 13,3;"4 . SAVE PROGRAM TO TAPE"
9120 PRINT AT 15,3;"5 . CATALOGUE (SCREEN)"
9130 PRINT AT 17,3;"6 . CATALOGUE (PRINTER)"
9140 LET A$=INKEY$: IF A$="" THEN GO TO 9140
9150 IF A$<"1" OR A$>"6" THEN GO TO 9140
9160 LET A=VAL A$
9162 IF A=1 THEN GO TO 9200
9164 IF A=2 THEN STOP
9165 IF A=3 THEN GO TO 9450
9170 IF A=4 THEN GO TO 9600
9175 IF A=5 THEN LET PRINTER=0: GO TO 9750
9180 IF A=6 THEN LET PRINTER=1: GO TO 9780
```

```
9200 CLS : PRINT AT 1,5;"TAPE TO RAM TRANSFER"
9210 PRINT AT 5,2;"ENTER PROGRAM TYPE"
9220 PRINT AT 7,3;"1 . BASIC PROGRAM"
9230 PRINT AT 9,3;"2 . SCREEN$"
9240 PRINT AT 11,3;"3 . MACHINE CODE"
9250 LET A$=INKEY$: IF A$="" THEN GO TO 9250
9260 IF A$<"1" OR A$>"3" THEN GO TO 9250
9270 LET A=VAL A$
9275 IF A=1 THEN GO TO 9300
9280 IF A=2 THEN GO TO 9330
9285 IF A=3 THEN GO TO 9370
9300 MERGE ""
9305 INPUT "NAME OF PROGRAM (UPTO 10 CHARS) "; LINE N$
9310 IF LEN N$>10 THEN GO TO 9305
9315 SAVE N$
9320 GO TO 9000
9330 LOAD ""SCREEN$
9340 INPUT "NAME OF SCREEN (UPTO 10 CHARS) "; LINE N$
9345 IF LEN N$>10 THEN GO TO 9340
9350 SAVE N$SCREEN$
9360 GO TO 9000
9370 GO SUB 9700
9390 LOAD ""CODE S,L
9395 INPUT "NAME OF CODE (UPTO 10 CHARS) "; LINE N$
9400 IF LEN N$>10 THEN GO TO 9395
9405 SAVE N$CODE S,L
9410 GO TO 9000
9450 CLS : PRINT AT 1,5;"LOAD A PROGRAM FROM TAPE"
9460 PRINT AT 5,2;"ENTER PROGRAM TYPE"
9465 PRINT AT 7,3;"1 . BASIC PROGRAM"
9470 PRINT AT 9,3;"2 . SCREEN$"
9476 PRINT AT 11,3;"3 . MACHINE CODE"
9480 LET A$=INKEY$: IF A$="" THEN GO TO 9480
9490 IF A$<"1" OR A$>"3" THEN GO TO 9480
9495 LET A=VAL A$
9500 IF A<>1 THEN GO TO 9505
9501 MERGE ""
9503 STOP
9505 IF A=2 THEN GO TO 9520
9510 IF A=3 THEN GO TO 9540
9520 LOAD ""SCREEN$
9530 INPUT "PRESS ENTER TO CONTINUE";A$
9535 BEEP .5,4: GO TO 9000
9540 GO SUB 9700
9550 LOAD ""CODE S,L
9560 GO TO 9000
9600 CLS : PRINT AT 1,5;"SAVE PROGRAM TO TAPE"
9605 PRINT AT 5,2;"ENTER PROGRAM TYPE"
9610 PRINT AT 7,3;"1 . BASIC PROGRAM"
9615 PRINT AT 9,3;"2 . MACHINE CODE"
9620 LET A$=INKEY$: IF A$="" THEN GO TO 9620
9625 IF A$<"1" OR A$>"2" THEN GO TO 9620
9630 LET A=VAL A$
9635 IF A=2 THEN GO TO 9670
9640 INPUT "AUTORUN LINE (L=NO AUTORUN) ";L
9645 INPUT "PROGRAM NAME (UPTO 10 CHARS) "; LINE N$
9650 IF LEN N$>10 THEN GO TO 9645
9655 IF L=0 THEN SAVE N$: GO TO 9000
9660 SAVE N$ LINE L: GO TO 9000
9670 GO SUB 9700
9676 INPUT "CODE NAME (UPTO 10 CHARS) "; LINE N$
9680 IF LEN N$>10 THEN GO TO 9676
9685 SAVE N$CODE S,L
9690 GO TO 9000
9700 INPUT "START ADDRESS OF CODE : ";S
9705 IF S<0 OR S>65535 THEN GO TO 9700
9710 INPUT "LENGTH OF CODE : ";L
9715 IF L<0 OR L>65535 THEN GO TO 9710
9720 RETURN
9750 CLS : PRINT AT 1,8;"CATALOGUE"
9760 PRINT AT 5,0;"FILES IN MEMORY : ": PRINT AT 8,0;"": CAT 1
9765 IF PRINTER=1 THEN COPY : LET PRINTER=0: GO TO 9000
9770 INPUT "PRESS ENTER TO CONTINUE "; LINE P$
9775 LET PRINTER=0: GO TO 9000
9780 LET PRINTER=1: GO TO 9750
```


Minz

by Ken Smith

And finally, this week sees part three of the listing. If you destroy all fifteen targets on a screen you move on to the next and are presented with a different set to blast.

If you would like a fast load copy on cassette send £2 to 73 Wakefield Street East Ham, London E6 1NR

```
21326 DATA098 152 169 46 133,251 133 253 169 64 133 2 32 242 151 169 252
21327 DATA133 251 133 253 169 64 133 2 32 243 151 258 252 200 254 169 34
21328 DATA 33 251 133 253 169 64 133 2 32 242 151 169 110 133 251 133 250
21329 DATA149 64 133 2 32 243 151 250 252 230 254 169 5 133 251 133 253
21330 DATA164 74 133 2 32 56 152 96 234 160 0 165 2 145 251 169 13
21331 DATA145 253 230 2 200 192 3 208 241 160 40 169 6 133 2 165 2
21332 DATA145 251 165 13 145 253 198 2 200 192 43 208 241 160 81 169 78
21333 DATA145 251 169 2 145 253 96 234 160 0 165 2 145 251 169 5 145
21334 DATA253 230 2 200 192 3 208 241 96 234 160 0 165 2 145 251 169
21335 DATA18 145 253 200 192 10 208 243 160 40 165 2 145 251 169 10 145
21336 DATA25 [illegible] 200 192 40 200 243 96 234 160 0 165 2 145 251 169 4 145
21337 DATA253 [illegible] 192 10 208 243 96 234 160 0 165 2 145 251 169 15 145
21338 DATA253 230 2 200 192 2 208 241 160 40 165 2 145 251 169 3 145
21339 DATA253 230 2 200 192 42 200 241 96 234 234 234 169 30 141 5 208
21340 DATA141 [illegible] 157 169 0 141 32 208 141 81 156 141 33 208 133 252 141
21341 DATA107 156 141 100 156 141 10 156 133 253 133 254 [illegible] 251 141,5 212
21342 DATA14[illegible] [illegible] 141 [illegible] 141 42 [illegible] 159 3 141 44 200 169 5 141 34
21343 DATA208 169 0 141 [illegible] 208 141 40 208 141 15 212 141 12 212 169 15
21344 DATA141 [illegible] 212 169 255 141 23 208 169 [illegible] 141 [illegible] 208 141 43 208 141
21345 DATA1 212 169 [illegible] 141 41 208 [illegible] 46 208 [illegible] 208 141 45 208 169
21346 DATA[illegible] 141 [illegible] 141 169 [illegible] 141 [illegible] 141 164 240 141 21 208 169 25 141
21347 DATA5 212 [illegible] 19 212 169 128 [illegible] 212 169 [illegible] 141 20 212 169 20
21348 DATA141 14 212 169 [illegible] 141 [illegible] 169 [illegible] 141 [illegible] 169 100 141 7
21349 DATA[illegible] 169 4 141 101 156 173 [illegible] 141 22 208 234 169 147
21350 DATA32 210 255 169 [illegible] 251 169 0 141 [illegible] 173 101 156 105 4
21351 DATA173 252 1 4 18 [illegible] 169 [illegible] 157 201 20 156 246 173 253 [illegible] 156
[illegible]
21357 DATA[illegible] 231 [illegible] 01 5 200 6
21358 DATA43 [illegible] 231 153 201
21359 DATA[illegible] 231 153 [illegible] 11 151 100
21360 DATA[illegible] 156 [illegible] 119 156 157 251
21361 DATA[illegible] 16 200 [illegible] 224 8 200
21362 DATA[illegible] 156 [illegible] 0 [illegible] 200 208 232
21363 DATA[illegible] 44 [illegible] 148 16 [illegible] 21 208 141 21
21364 DATA[illegible] 15 [illegible] 140 [illegible] 224 40
21365 DATA230 [illegible] 13 [illegible] 134 [illegible] 254 [illegible] 141 4 200
21366 DATA[illegible] 41 [illegible] 200 [illegible] 141 250 [illegible] 251 45 16 200 141 16
21367 DATA200 [illegible] 200 141 [illegible] 14 141 [illegible] 141 33 200
21368 DATA32 [illegible] 156 [illegible]
21369 DATA[illegible] 32 0 [illegible] 156 [illegible] 200 141 [illegible]
21370 DATA200 43 30 200 14 [illegible] 200 [illegible] 200 141 [illegible] 208 [illegible] 231
21371 DATA144 162 [illegible] 41 [illegible] 206 41
21372 DATA[illegible] 200 [illegible] 200 10
21373 DATA21 [illegible] 155 201 10 209 9 [illegible] 155 201
21374 DATA12 200 [illegible] 156 [illegible] 5
21375 DATA20 107 [illegible] 155 [illegible] 156 [illegible]
21376 DATA156 201 [illegible] 155 [illegible] 164 254 32
21377 DATA244 144 169 36 15 240 43 169 129 141 4 [illegible] 169 128 141 4 212
```

Programming: C64

```
[illegible]
```

Programming: QL

Utility procedures

by A McMutrie

The following QL program features a number of useful procedures that be incorporated into your own programs

Time shows the day, date and time in *window 0* provided the clock has been set

Zd(n$) gives a directory of the relevent drive

Zfm prints the amount of free memory

The commands thereafter all relate to Epson compatible printers are well labelled with *Rems* and are self explanatory.

```
31000 REMark *** Utilities Start ****
31005 STOP
31010 DEFine PROCedure time
31015  CLS#0
31020  PRINT#0,' ';DAY$;', ';DATE$
31025 END DEFine
31030 :
31035 DEFine PROCedure zd(n$)
31040  LOCal d$
31045   IF NOT n$ INSTR '12' :PRINT#0,'no such drive':RETurn
31050  CLS: AT 3,12:PRINT'DIRECTORY MDV_';n$
31055  d$='mdv'&n$&'_':DIR d$
31060 END DEFine
31065 :
```

```
[illegible]
```

Ram Disc

by Brian Cadge

The Amstrad 6128 (or other CPC's with added memory) features banked *Ram* which can be utilised by implementing a *Ram* disc, which is what this program does

To make use of the *Ram* disc, after entering, correcting and moving the listing type in *Ramdisc* All file handling commands will then be directed towards the Ram disc To return to Amsdos type *Disc*

There are a few differences in operation from normal Amsdos *Ram* disc filenames can be up to 10 characters long and can include any Ascii character The *Ram* disc directory has space for 20 entries so if this number is exceeded an error report will be generated

To erase a file use *Kill*, ' *program* ' on a 6128 and 664

The banked *Ram* is switched in and out at address 16384 by the program Interrupts are not disabled so you cannot have an interrupt running in the address space 16384 to 32767

```
10 '
20   RAMDISC Basic Loader Program for 12
8K CPC's
30 '
40 SYMBOL AFTER 256:MEMORY 41200
50 ON ERROR GOTO 150
60 ln=160:FOR n=41201 TO 42641 STEP 20
70 ls=0:FOR j=0 TO 19
80 READ a$:v=VAL("&"+a$)
90 cs=cs+v:ls=ls+v:POKE n+j,v
100 NEXT j:READ ck:IF ck<>ls THEN PRINT"
DATA ERROR IN LINE";ln;CHR$(7):STOP
110 ln=ln+10
120 NEXT n
130 IF cs<>185721 THEN PRINT"DATA ERROR
- Check listing":CHR$(7):STOP
140 CALL 41201:PRINT"RAMDISC installed":
END
150 PRINT"DATA ERROR around line";ln;CHR
$(7):STOP
160 DATA F3,E5,A1,F5,C5,3E,[illegible],01,00,7F,E
D,79,C[illegible],F1,C9,F5,C5,F6,C4,01,3294
170 DATA 30 7F,ED,79,C1,F1,C9,F5,C5,47,3
E,20,CD,5A,BB,78,06,0[illegible],FE,0A,2599
180 DATA 36,05,[illegible],D6,0A,[illegible],F7,4F,76,FE,0
8,20,04 3E,20 18,02,C6,30,CD 1620
190 DATA 5A,BB,79,[illegible]6,30,CD,5A,BB,[illegible],F1,C
9,E5,D5,11,AD,A6,48,06,0A,[illegible]E,2709
200 DATA 21 [illegible],[illegible]9,[illegible]0,[illegible],41,11,AD,A6,7E,1
2,23,13,[illegible],FA,D1,E1,C9,78,B7,2160
210 DATA 23,34,FE,0B,38,02,06,0A,[illegible]D,38,A
1,D5,AF,CD,[illegible]0,A1,11,[illegible]0 48,06,1694
220 DATA 14,[illegible]5,D5 2[illegible],AD,46,06,0A,14,9E,[illegible]
0 09 13 23,10,F8,E[illegible] [illegible] EB,D1,2257
230 DATA 37,10,0C,D[illegible],1[illegible],[illegible]4,30,EB,09,EB,[illegible]
[illegible]
240 DATA [illegible]
[illegible],2[illegible]5[illegible]
250 DATA [illegible]
[illegible] 2[illegible]75
260 DATA [illegible]
[illegible],2865
270 DATA [illegible] FE [illegible],37 39 32,A7,A6 [illegible],[illegible]9 5
9 32,A[illegible] A6,[illegible],[illegible]4,F5 [illegible],A2,A6 3[illegible]84
280 DATA [illegible],[illegible] 39,3A,A7,A6 [illegible],[illegible] 39,[illegible],[illegible]
[illegible],A6,[illegible] 2E,A2 A6,06,14 AF 2[illegible]97
290 DATA CD [illegible],A[illegible],3E [illegible] 77 [illegible],1
[illegible],F6,A[illegible],AF,[illegible],9[illegible],[illegible],22,[illegible]128
300 DATA 92,A6,32 A[illegible],A6,32,A6 46 32 A4,A
[illegible] A2,2[illegible],A9,A6,C[illegible],[illegible],BC,[illegible]19
310 DATA [illegible] 26 A2 [illegible],32 A2 C3 [illegible] A[illegible] 52 [illegible]
[illegible] AD 44 49 5[illegible] C3,4B 49,4[illegible],CC [illegible]463
320 DATA [illegible],0[illegible] [illegible]D,DD 2[illegible],E9,A[illegible] [illegible] [illegible],73,A
[illegible],DD 6E,00,DD,66,[illegible] 36,C3,23,2026
330 DATA FD 7E [illegible] 77,23 FD,7E,01,77,DD 2
3 DD 23,FD,23 [illegible],23,1[illegible],E4,C9,[illegible]
340 DATA 77 8[illegible],7A,8[illegible],7D,8[illegible] [illegible] 8[illegible],[illegible],8F,[illegible]
6,BC,89,BC BC BC 8F,BC,92 BC,3[illegible]0[illegible]
350 DATA 95,BC 98,BC [illegible]B,B[illegible] 9E,A[illegible] [illegible],A3,[illegible]
E,A3,3[illegible],A3,5C,A3,8D,A[illegible],9E,A3 2[illegible]7
360 DATA B[illegible],A3 [illegible]A A[illegible],[illegible]A,44 AF,44,F[illegible] 44,[illegible]
[illegible],A5,3A A[illegible],A6 37,2[illegible],1D,[illegible],F3,22[illegible]3
370 DATA A1,39 [illegible]B,2[illegible] 4[illegible],A2 [illegible]D [illegible] 41,4F [illegible]
9,0D,[illegible]A,42 6[illegible],64,20,6[illegible],6F,6[illegible],2[illegible]
380 DATA 6D 6[illegible],6E,64,[illegible] [illegible] [illegible] 4F [illegible] [illegible]9 3
E 03 32,A[illegible] A6 7[illegible] E6,3F,67,[illegible]D 23[illegible]
390 DATA 3A A[illegible] D[illegible] D[illegible] E[illegible],DD,77,[illegible],23,[illegible],3
A A[illegible] DD,77,[illegible],23 [illegible],9A A1,DD,3[illegible]24
400 DATA 77,1[illegible],23 CD 9A,A1,4F,DD 7[illegible] [illegible]
3,CD,9A,A1 47 DD 7[illegible] [illegible]9 2[illegible] CD,2357
410 DATA 3A,A[illegible] [illegible] 77,[illegible]A,[illegible] [illegible] A6 2[illegible] [illegible]
A A1,DD,77,[illegible]B [illegible],[illegible],A6 E[illegible] 4[illegible] 2[illegible]52
420 DATA 34 A6 [illegible] 2[illegible],[illegible]D,9A A[illegible],[illegible] 23 [illegible] [illegible]
A A1,47 ED,43 9[illegible] A6 EB,[illegible],[illegible]E,30[illegible]
430 DATA A[illegible],DD,[illegible]E [illegible],DD,[illegible],[illegible],[illegible] F6 [illegible]
D,7E,[illegible]2,37,CD DE A1 [illegible]9,3A,A5,295[illegible]
440 DATA A6,B7,2[illegible] [illegible],3E,[illegible] 32,A5 A[illegible] C9 [illegible]
7,18,F7,18,F[illegible],E[illegible] 3A,A5,A6 B7,2427
450 DATA 2[illegible],21,3E [illegible],3[illegible] A5 A6 [illegible]A,[illegible],A6 7
C,B5,28, 5 2B,22 94,A6,2A 9[illegible],1924
460 DATA A6 [illegible] [illegible]A,A[illegible] 23,22 [illegible]8 A6 6F [illegible]6 [illegible]
F,7D,[illegible]7,E[illegible] C9,F6,F[illegible],[illegible]9,F8,3A,3[illegible]4
470 DATA A5,A6,F[illegible] C[illegible] [illegible],[illegible]7 [illegible]E [illegible] 32,A[illegible] 4
6,ED,4B,94,A6,E[illegible],5B,9[illegible],A6,7[illegible],2496
480 DATA B[illegible],2[illegible],2B [illegible]6 EB,C[illegible],9A,A[illegible],2[illegible],EB,7
7,23 [illegible]8 F[illegible],ED,4B,94 A6,2[illegible] 9[illegible],2499
490 DATA 46 F[illegible] [illegible] 37 [illegible]9 F[illegible] F[illegible],[illegible]9,E5,2A 9
8,A6,2B,22,9E A6,2A 94,A6 23,3[illegible]
500 DATA 22,94 A6 E[illegible] [illegible]4,3E,[illegible],[illegible] AF A[illegible] [illegible]
[illegible],2A,94 A6,7C B5 28,AD,F6 FF 2922
510 DATA 37,E[illegible] [illegible]9,3A,A6 A6,B7 [illegible]2 3[illegible] A2 [illegible]
[illegible] [illegible]3,A[illegible],32,[illegible]0,2[illegible],C4,A3 CD,9[illegible] 295[illegible]
520 DATA A[illegible],AF,C9 8D,0A 4[illegible],69 [illegible] [illegible],[illegible]E,[illegible]
1,6D,6E,20,6E,78,69 73,74,73,2045
530 DATA [illegible],3A,[illegible] 3E 03,32 A6 A6 C[illegible],E[illegible],A
[illegible] EB [illegible],9E,A6,E[illegible],DD,E[illegible] [illegible],[illegible] [illegible]975
540 DATA [illegible]2 [illegible],F[illegible] [illegible] 37,2[illegible] 3A A4 A6,FE [illegible]
[illegible] 2[illegible] 2E,AF,CD [illegible] A D[illegible],[illegible] A,2[illegible]
550 DATA [illegible],21 [illegible],A6,ED 5[illegible] [illegible] A6,ED B[illegible] 3
E, [illegible] 2 D[illegible] 2A,9[illegible] A[illegible],2[illegible],9A,A6 [illegible]
560 DATA 2[illegible] [illegible] [illegible],A6 [illegible] F[illegible] [illegible] E
[illegible] [illegible],27,A4,[illegible],[illegible] [illegible] [illegible]A,27[illegible]
570 DATA A0 [illegible]9,[illegible],30,44,5[illegible] 72,[illegible],[illegible] 74,[illegible]
[illegible] 72 74 2[illegible] 65 7[illegible] [illegible] A[illegible] [illegible] A,[illegible]23
580 DATA FF 3A,A6,A6 B7,2[illegible] 2[illegible] [illegible]6 F[illegible],3E [illegible]
[illegible] 32 [illegible] A[illegible] [illegible],AF 3[illegible] [illegible],A[illegible] 2[illegible],[illegible]97
590 DATA 3A,A6,7[illegible] B[illegible],2[illegible],47,CD 2A [illegible] A6,[illegible]
[illegible] 7[illegible] [illegible] D[illegible],7[illegible],[illegible]E 2A 9[illegible] A6 DD 2[illegible]
600 DATA 7[illegible] [illegible],DD,74,[illegible]2 D[illegible] E[illegible],[illegible],F4,41 [illegible]
[illegible] 2A 9E,A6 DD 46,1[illegible],AF,[illegible] [illegible],2[illegible]24
610 DATA A1,7A,DD,E[illegible] DD 77 1A 2A,9A A[illegible] 2
[illegible] [illegible]2,A6 3A,A4,A[illegible] 3C,32,A4,A6 26[illegible]3
620 DATA [illegible], [illegible]4,[illegible],DD [illegible]9 DD,22 4[illegible],A6,[illegible],F
[illegible] [illegible],F6,F[illegible] 27 [illegible]8,A[illegible] AF [illegible],[illegible] 257[illegible]
630 DATA [illegible] ,3A,A4,A6,[illegible] [illegible] [illegible],[illegible] 2A,A[illegible],A
6,[illegible],FF [illegible]D,F4,A[illegible],[illegible]8,E[illegible],E5,F5 2884
640 DATA 3A A6,A6,FE [illegible] 2[illegible] [illegible] F[illegible],[illegible],[illegible]
[illegible],[illegible]E [illegible] 32 A6 A6 2A 9A,A6,7[illegible] 1946
650 DATA BE,2[illegible],1[illegible] F[illegible] [illegible] B[illegible],A[illegible] 23 22 9A A
6,[illegible]A,9[illegible],A6,23 22,9[illegible],A6,E1,F6,2635
660 DATA F[illegible],37 C9,F[illegible],E1,F6,F[illegible],C9 2[illegible],EB A
[illegible] CD 9[illegible] A[illegible] F[illegible] E[illegible] AF [illegible]9 [illegible] [illegible]A,3456
670 DATA [illegible]2,61 6D,64,69 73,[illegible]4,[illegible] [illegible]6,7[illegible] [illegible]
```

```
6A,E,7E,FF,FE,3A A4 A6,FE,2364
680 DATA 34 20,4D,3E 32,32,A4,A4,F,DE 2
A 9E A6,DE,77,1C,FE,AF CD,93,2949
690 DATA A1,F7,DD,2A,A2,A6 DD,77 A DD 7
.,0F,DD 70,10,DD,7E,1B DD,74,2727
700 DATA 0C,CD,F4,A0,ED,53,46 A6,4B,42,E
B 78,B1 28 15 2A,9A A6 7C B5,2658
710 DATA 2A,16,EB,E7 EB,CD,B3,41,23,22,9
A,A6,13,0B,18,E7,F6,FF,37,C9 2739
720 DATA E1,F6,FF,C9,21,EB,A4,1D,90,A1 A
F,C9,21,C9,A5,CD,90,A1,AF,CD,3550
730 DATA 08,A1 DD,21,A3 40 1C,CD CE,A1,D
D,7E,08,FE FF,28,3F,DD,E5,E1,2753
740 DATA 96,0A 7E,CD,5A,BB,23,1,F9,3E,2
0,CD,5A,BB,7E E6,7F,C6,24,CD,23 3
750 DATA 5A,BB,DD,7E,1E,FB 3F,DB 3F 9C,2
D,3C,A1,3E,4B,CD 5A,BB,3E,0D,2301
760 DATA CD,5A BB,3E,1A CD,5A,BB,0 ,14,1
(,DD 0A,1A,3,,12,FE,14,2",BA,1883
770 DATA 3E,CD,CD,5A,BB,3E 1A CD,5A,BB,F
6,FF 37,CD,F4,A0,CD,DD,A1,C9,3064
780 DATA CD,0A,52,61,62,64,69,73 63,2 4
4,69,72,65,63 74,6F,7,74 3A,1765
790 DATA 0D,1A,FF,FE,...22 3A,42 DD 6E
0,DD,66 1 46,23,5E,23,56,EB,2251
800 DATA CD,53 4C D2 FE 4C AF,C1 0D,41,E
5,DD,E1..1 0A 11 ED 42,DD 4E 2812
810 DATA C3,DD,46,C4,ED,43 A0,A6,EB 2A.4
2.A6,AF,ED,42,22,42,A6,EB,36,2630
820 DATA FF,7D,FE 7C 28,5C,DD,7E,3A,FE,F
F 28,55,E5,DD,5E,07,DD 56,08,2747
830 DATA DD,6E,18,DD 66 1C,ED,4B,92,A6,1
D,9A,A1,EB,CD,B3,A1,EB 23,13,2922
840 DATA 7A,B6,20,F2,7B B9,21,EE,E1 54,5
D,01,14,A0,09,AF,CD,D0,A1,ED,2368
850 DATA B0,E5,DD,6E,07,DD,66,08,AF,ED 4
B A0,A6,ED,42,DD,75,07,DD,74,2672
860 DATA 18,1C,14,00,DD,09,E,,3E,FF,12,0
,14,1C,7B,FE,7C 20,D9,3A,A4,1812
870 DATA A6,3D,32,A4,A6,2A,A2 A6,C1,14,0
( AF,ED 42,22,A2,A6,C1,F4,A0,2447
880 DATA C9.00 00,11,10,0C,04,00,00,00,0
( 00 10 0,,00,00,36,00,00,30 201
```

Please Wait

by John Chasey

This machine code utility for the C64 provides the facility to pause a Basic program and wait for a key to be pressed. Whilst paused the screen border flashes until a key is pressed. Then, the original border colour will be restored and the program can continue.

```
80 FORX=49152TO49181
90 READDT
100 POKE X,DT
110 Y=Y+DT
120 NEXTX
130 IFY<>4402THENPRINT"DATA ERROR."
140 END
150 DATA 173,032,208,141,030,192,162
160 DATA 000,232,228,000,208,251,238
170 DATA 032,208,032,228,255,201,000
180 DATA 240,239,173,030,192,141,032
190 DATA 208,096

READY.
```

Screen Scroller

by Alexander Hildyard

Screen scroller for any Amstrad CPC enables a user defined chunk of the screen to be smoothly scrolled, one pixel at a time, for any distance.

On running the program the start line of the scroll, number of lines to be scrolled and width of the scrolling area are requested. This format can now be saved for later use.

The program now displays the address to *Call* to start the scroll.

```
35 addr=15000
40 FOR n=addr TO addr+44: READ a: POKE n
,a: NEXT
45 INPUT "Starting line of scroll (0-20)
";m
46 m=m*80+49152: y=INT(m/256): x=m-(256*
y)
47 POKE addr+1,x: POKE addr+2,y
50 INPUT "no  of lines to scroll ",a
60 POKE addr+4,a
70 INPUT "Width of scrolling area (79 ch
ars max ) ",b
80 POKE addr+11,b: POKE addr+16,b
90 INPUT "Save this format (Y/N) ",a$
100 a$=UPPER$(a$)
110 IF a$<>"N" THEN SAVE "scroll lft",b,
addr,50
120 DATA 33,&80,&c2,6,8,197,229,6,8,197,
6,&4f,229,126,229,17
130 DATA &4f,0,25,119,225,35,126,43,119,
35,16,249,225,17,0,8
140 DATA 25,193,16,229,225,17,&50,0,25,1
93,16,217,201
150 PRINT "Now enter 'CALL ",addr,"' to
scroll"
```

8056 Translator

by Ralph Lorenz

The Serial 8056 printer has been around for several months now, originally marketed solely as a QL compatible but no screen dumps have yet appeared for it.

The following QL program dumps a *Mode 4* screen and correctly reproportions it to the size of the paper.

Note that black and red appear as white on the printout and green and white appear as black. The screen takes around 30 minutes to dump an entire screen.

```
100 BAUD 1200:OPEN #3,ser1:CLEAR
110 PRINT #3,CHR$(27);CHR$(49);
120 FOR r=0 TO 255 STEP 4
130 PRINT #3,CHR$(27);CHR$(75);CHR$(0);CHR$(2);
140 FOR c=0 TO 127 STEP 2
150 FOR p=7 TO 0 STEP -1
160 n=0
170 FOR b=6 TO 0 STEP -2
180 a=131072+128*(r+(b/2))+c
190 IF PEEK(a)&&(2^p) THEN n=n+(2^(7-b))+(2^(6-b))
200 NEXT b
210 PRINT #3,CHR$(n);
220 NEXT p
230 NEXT c
240 PRINT #3
250 NEXT r
260 CLOSE #3
```

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With Kenn Garroch

The nature of Sin

D M Ford, of Newport Gwent, writes

Q I am learning Basic and would like to know what the Sin, Cos, and Tan functions really mean. I know that they are something to do with trigonometry and circles, but could you explain why and show some uses for them?

A Sins and cosines are to do with circles in the following way In the diagram, the line H (hypotenuse and radius or the circle) forms an angle b with the line A The length of A is from the centre of the circle to where the line P meets it The lines A and P meet at a right angle so the definitions of Sin, Cos, and Tan are

```
SIN(b)=P/H
COS(b)=A/H
TAN(b)=A/P
```

As the angle b changes so that the line H is always the radius of the circle, the lengths of the lines A and P change in length From the above formulae, you can see that P is dependent on the Sin of b and A is dependent on the Cos of B

If you then imagine the circle rolling along horizontally, a point (in the diagram the left most point on the circle) on the circle will describe a Sin curve as shown in the diagram If it rolls downwards, the point describes a Cos curve

Or, looking at it another way, as b varies, the length of P varies non-linearly between +1 and −1 (presuming the radius of the circle is one and the centre is taken as being at 0) and this non-linearity is defined by Sin The same applies to A which is described by Cos

The angle b varies through is 0 to 360 degrees or 0 to 2×π radians (1 radian = 180/π degrees when π=3 1415926) Most computers work in radians so, Sin and Cos can be used by a computer to draw a circle

```
10 FOR T=0 TO 2*3 1415926
STEP 1
20 PLOT SIN(T)*50+100,
COS(T)*50+100
30 NEXT T
```

Here, the position of each point is specified by Sin and Cos with T being the value of the angle The result of Sin or Cos is always between +1 and −1 so unless the circle is going to be very small, the values need to be multiplied up by the value of the radius in this case 50

The absolute position of the centre of the circle is set by adding a constant to the values of the horizontal and vertical points in this case 100 You can change the shape of the circle to an elipse by making the two radii different, the larger being the radius of the long axis, the smaller that of the short axis

Tan(b) is Sin(b)/Cos(b) and varies between 0 and ∞ (infinity) as the angle b goes from 0 to 90 degrees (0 to π/2 radians) It is related to the tangent to the circle (hence the name) which is at right angles to the radius line (H)

You can see that it is 0 when b=0 since the length of P is zero When b is 90 degrees, the value of TAN(b) is ∞ since the length of A is zero and anything divided by 0 is ∞ It does not have that many uses in general programming unless you are specifically dealing with maths problems

Monitor switching

A Hanson of Dudley, Birmingham, writes

Q I have an Amstrad CPC colour monitor and I would like to use it with my BBC micro. Is this possible?

A Yes, plug it into the RGB port — the connections are identical

Garbage collection

Ian A King of Greenford, in Middlesex writes

Your reply to Mr Brumpton of Clapham, London (Peek and Poke, August 28) is misleading and does not point the way to a solution to his problem, although your basic reasoning is in the right direction.

Garbage collection is indeed performed the first time within a program in which either *Openout* or *Openin* is used. This is done in order to provide space for a buffer for file transfer. Unfortunately, the garbage collection is performed regardless of previous collections, whether forced by *Fre* or otherwise. Subsequent *Openouts* or *Openins* do not require this as the file transfer buffer is preserved once it has been set up.

The solution to the problem is to force a file transfer allocation as early as possible in the program, ie, before any string work, so that garbage collection is a minimal task. This is achieved by a line such as:

```
10 OPENOUT "DUMMMY":
MEMORY HIMEM-1:CLOSEOUT
```

The only restriction on this line is that it must be placed after any *Symbol After* commands.

The example program given in *Popular* would give a delay of only two seconds or so as all the *Name$()* strings are identical and thus only one copy is stored, pointers for *Name$(1)*, *Name$(2)*, etc, all pointing to the one storage area, the same applies to *Addr1$()*, *Addr2$()*, etc. If line 30 were changed to read:

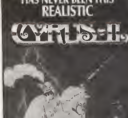
```
30NAMES$(T)="AAAA"+CHR$
(30+T)
ADDR1$(T)="BBBBB"+CHR$
(30+T)
```

etc, making each string unique, the waiting time will be in the order of two minutes as experienced by Mr Brumpton and the need to overcome this, as above, becomes more of a requirement

I cannot claim credit for this solution — it can be found on page 2.6 of the Amstrad DD-1 disc drive manual

A Okay I'm not perfect, my thanks to Mr King for providing and explaining the solution

Is there anything about your computer you don't understand, and which everyone else seems to take for granted? Whatever your problem *Peek* it to Kenn Garroch and every week he will *Poke* back as many answers as he can The address is *Peek & Poke, PCW,* 12-13 Little Newport Street, London WC2H 3LD


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Loony Bins, Drake Nets and other modern mysteries

David Wallin responds to questions of boardom and meets the real Adrian Mole

Most of my mail seems to be about new boards and this week s batch is no exception

Firstly a letter from Dave Every, the Sysop of Drake Net Drake Net is a Micron board and Dave says that some people are trying to log on but are unable to He has three ideas as to what may be wrong, namely

1) They are using the wrong type of equipment A micron board may *only* be accessed by a Spectrum, BBC or C64 with the *appropriate* modem

2) They are using incorrect software *Micron* software must be used, and is available on Prestel/Micronet on the following pages Spectrum – Page *600613517#, BBC – Page *8106542#, C64 – Page *600617282

The software is free to download, but if you re a Spectrum owner who does not have access to Prestel/Micronet then it can be bought for £1 (postage, tape etc) from Micron Tape Dave Every, 5 Turnbill Gardens, Chaddlewood, Plympton Plymouth PL7 3XF

3) They are using the software/modem incorrectly. To use Micron software on the Spectrum, with a VTX5000 modem you should break into VTX5000 main menu (*Do not use option 7*) place modem in TX mode type *New* load Micron software, select option 0 – Log on dial 0752 330176 (or the number of any micron board) wait to hear the carrier tone, go On-Line (Put the silver switch on the front of the modem down), hang up phone (phew!)

Dave also included a brief description of the format used by a micron board, which is very similar to that of a viewdata board

Pages may be accessed by **page_number#*, ie **280#*

Page 90 is used to log off ie **90#* to log off

Menus are available, and the number of the desired function is selected by pressing the relevant number

Lastly the times for Drake Net have changed It now runs Monday to Friday 10pm till midnight on auto answer

There is also another Micron board now on-line The details of this one, called Safety Net based in Scotland, are as follows the sysop is Peter Holt, its hours are Monday to Wednesday, 8pm till 10pm and the number is 041-778 3428

The sysop also gave his Prestel mail box which is 417783426 One interesting thing about this board is that although it runs using Micron software on a Spectrum, it also runs on a QL! The board runs on a Spectrum and a QL linked together using a network facility This should give the board some interesting features, so why not give it a try and see what it has to offer? Remember that it is micron so all the points Dave Every made above apply to this board too

Another board recently put on-line is the nicely named Loony Bin This board is open 24 hours and the number is 0709 546254 Speeds are 300/300 and 1200/75 (8N1)

The sysop s name is Adrian Mole. Yes, it *really* is The board has an adventure section with clues, although it is not an adventure orientated board there are other sections including music, a hitchhiker s guide (?) and hi-fi There are also BBC downloads for what sysop calls proper' users Why not communicate with Adrian Mole?

A new board in the Itec range is now on line This board is called Hitec – Hillingdon Information Technology Centre

Hitec is the Middlesex training centre s viewdata system It was created by and is maintained by YTS trainees and supervisors The information on the Hitec ranges from local Hillingdon area information through computer news, to information about Middlesex training centre itself Other features are jokes pages quizzes, a gallery games reviews, articles on local history, a list of local organisations and machine specific databases (Amstrad, Sinclair, Acorn, Atari and Commodore)

Hitec has mailbox facility to leave messages to the sysops Hitec is a viewdata system so the speed is 1200/75 and the protocol seven bits, even parity and one stop bit It runs on a BBC B, with twin 80-track double sided disc drives, and uses Cummunitel software

The board is on line 24 hours a day, 365 days a year It will however be off line for up to one hour each day for mailbox collection, etc The time should be well under one hour as it is basically for maintenance of the board and done daily this should not involve much work

The system allows advertising at the cost of £1 50 per frame per month for businesses and free at present for private ads There is a discount for keeping the advert in for a long time and a fee may arise for private ads in the future Remaining details include the system operator (David Hook) the design coordinator (Nick Lewis (Max)) and his Prestel Mailbox 08953 1726) the frame manager (Terry Naughton) and of course, the phone number Uxbridge (0895) 59842 As with other Itecs, the board is free to use

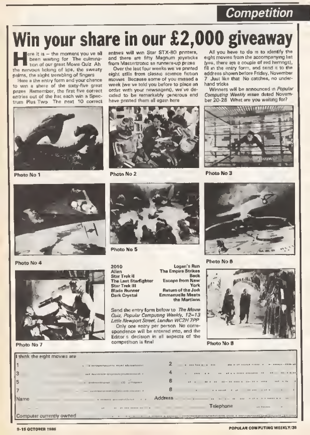
Next a request for help from Tony Surridge His problem is that he has a Tatung Einstein, WS2000 modem, Tatung TP 100 printer and Kuma software and can't seem to auto-dial with his modem The Einstein is a good machine but for various reasons there is not a vast amount of software available for it But it does run CP/M, which means that there should be a fair amount of terminal software available (it may need installing though!) and one piece may well suit the needs of the Einstein

It may be worth trying to get UKM7, which was explained in an earlier article Otherwise, Tony, I think you re right you may be best to change your equipment but if you do this then you need only change the modem If you were to change to an intelligent modem say a WS4000 then all your auto dial baud rate selection problems will be overcome

You could also try a log on to PUB8, which is the only BB I know of which runs on an Einstein and the sysop may well be able to help you out The number of PUB8 is 0594 52287 1200/75 and 300/300 baud hours 6pm to 8am

Tony also wanted to know about BBs with an SF section or Sig I don t know of any off-hand but I m sure that there must be some If anyone knows of one then let Tony know If you leave him a message on Cyberzone BB (01-638 2034 300 baud 24 hours) he should see it there

Lastly, Tony points out that many boards seem unfriendly to the new user They have large menus to be memorised, with up to 30 options This is, of course true but I'm afraid it's a fact of life in communicating A good board must have a lot of features and so must have large menus



Win your share in our £2,000 giveaway

Here it is – the moment you've all been waiting for. The culmination of our great Movie Quiz. Ah the nervous licking of lips, the sweaty palms, the slight trembling of fingers.

Here's the entry form and your chance to win a share of the sixty-five great prizes. Remember, the first five correct entries out of the hat each win a Spectrum Plus Two. The next 10 correct entries will win Star STX-80 printers, and there are fifty Magnum joysticks from Mastertronic as runners-up prizes.

Over the last four weeks we've printed eight stills from classic science fiction movies. Because some of you missed a week (we've told you before to place an order with your newsagent), we've decided to be remarkably generous and have printed them all again here.

All you have to do is to identify the eight movies from the accompanying list (yes, there are a couple of red herrings), fill in the entry form, and send it to the address shown before Friday, November 7. Just like that. No catches, no underhand tricks.

Winners will be announced in *Popular Computing Weekly* issue dated November 20-26. What are you waiting for?

Photo No 1

Photo No 2

Photo No 3

Photo No 4

Photo No 5

Photo No 6

Photo No 7

Photo No 8

2010	Logan's Run
Alien	The Empire Strikes Back
Star Trek II	Escape from New York
The Last Starfighter	Return of the Jedi
Star Trek III	Emmanuelle Meets the Martians
Blade Runner	
Dark Crystal	

Send the entry form below to *The Movie Quiz, Popular Computing Weekly, 12–13 Little Newport Street, London WC2H 7PP*.

Only one entry per person. No correspondence will be entered into, and the Editor's decision in all aspects of the competition is final.

I think the eight movies are

1 .... 2 ....

3 .... 4 ....

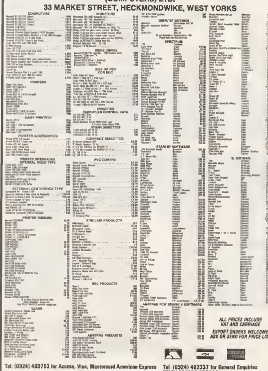
5 .... 6 ....

7 .... 8 ....

Name .... Address ....

.... Telephone ....

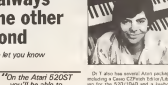
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The micro's always musical on the other side of the pond

Mark Jenkins turns Stateside to let you know what's borne in the USA



In the recent Music Supplement we looked at some of the micro packages becoming available in the States, although some of them may not reach these shores. We concentrated on the Commodore 64 simply because it has established a huge user base in the US, and so continues to be popular for musical applications.

But it's not just the Commodore micros which attract Stateside attention: after a long thinking period the Atari 520ST and 1040ST have become popular with software houses, and offer the obvious musical advantage of built in MIDI In, Out and Thru (the Thru function is wired to the spare two pins of the Out socket, in an imaginative cost-saving exercise which could be slightly confusing).

Apples are also popular in the US, and while the Apple II has now been discontinued, its successor the IIGS will run most II+/IIe/IIc software at three times the normal speed and sells for £995. It uses a 16 bit 65C816 processor, has Apple II compatible expansion slots, and has a built in Ensoniq Mirage synthesiser.

Well, that's a bit of an exaggeration. What the Apple does have is a Q chip, the heart of Ensoniq's Mirage sampler, ESQ-1 digital synthesiser and DSP-1 Sampled Piano. The Q-chip offers 32 oscillators, of which 30 are available on the new Apple to create 15 dual oscillator voices. There's a built-in Analog to-Digital convertor for sound sampling, so all you need is appropriate software.

Several US companies are already rumoured to be working on such software, which may well make life difficult for companies who make a living by adding sampling facilities to 16-bit computers such as the Atari (the Hybrid Sorts ADAP sampler would appear to be at risk, for instance). But it'll be interesting to get hold of the new Apple when it's available over here and compare it to an Ensoniq Mirage or similar sampling keyboard.

Apple's Macintosh is also popular in the US, although it works out quite expensive over here when you consider the cost of adding a Southworth or passport MIDI interface to run packages such as Southworth's Total Music, which has the unusual distinction of being able to record four MIDI inputs simultaneously. This means that your whole band can play together and have the data recorded via MIDI for later editing.

> *"On the Atari 520ST you'll be able to obtain many Hybrid Arts packages over here very soon. DX-Droid is interesting – it creates new sounds for jaded programmers who don't want to specify more than 3 or 4 parameters"*

On the Atari 520ST you'll be able to obtain many Hybrid Arts packages over here very soon. DX-Droid is interesting – it creates new sounds for the Yamaha DX7 synth for jaded programmers who don't want to have to specify more than three or four of the 147 parameters which go to make up each sound. Also from Hybrid comes the CZ-Droid, which does the same job for the Casio synths, and various composer packages for the 520/1040 and also for the cheaper 130XE.

The new Apple

Dr T also has several Atari packages, including a Casio CZPatch Editor/Librarian for the 520/1040 and a keyboard Controlled Sequencer coming up (this one only runs on the Commodore C128 at present). Dr T, 66 Louise Road, Chestnut Hill, MA 02167. Tel 0101 617 244 6954.

Virtual Sounds has what seems like an interesting new package – Soft Synth, which generates synthesiser sounds in software on an Atari 520 or Macintosh and downloads them to a sampling keyboard such as the Mirage or Prophet 2000. Both keyboards could do with a little help on the synthesising side (although they're great for sampling) so Soft Synth could be a godsend.

Virtual Sounds, 557 Tremont, Suite 11, Boston MA 02118 USA. Tel 0101 617 353 1815.

Opcode, Mark of the Unicorn and many other US companies are manufacturing excellent compositional packages for the Apple Macintosh and IBM PC, both of which are a little outside our price bracket for current discussion. Many companies have developed a package for one micro – perhaps the Atari 520 – and claim to have the C128 or other version on the way, but, of course, it's difficult to find out when this is likely to happen.

A couple of companies over here do seem to be getting US products over – they are Rod Argent's Keyboards (mainly for Apple Macintosh and more upmarket stuff) and Syndromic Music (for Hybrid Arts and a few other imports). A London store called Take Note also has a wide range of computer packages on constant demo, and we'll check them out shortly.

Rod Argent's Keyboards, 20 Denmark Street, London WC2. Tel 01 379 6690.

Syndromic Music, 24/26 Avenue Mews, London N10. Tel 01-444 9126.

Take Note. Tel 01-485 2986.

If you have any queries or tips for this column, please write to Mark Jenkins at *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2H 7PP. Mark would also welcome examples of your own music on audio or program tape, or disc.

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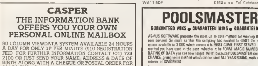
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New Releases

John Cook looks through this week's new arrivals

Amstrad CPCs

Program *Prodigy* **Type** Arcade Adventure **Micro** 464/664/6128 **Price** £9 99 tape, £14 99 disc **Supplier** Electric Dreams 31 Carlton Crescent, Southampton SO1 2EN

Program *Doomdark's Revenge* **Type** Adventure/Strategy **Micro** 464/664/6128 **Price** £9 95 tape £14 85 disc **Supplier** Beyond, 74 New Oxford Street London W1

Program *Speed King* **Type** Simulation **Micro** 464/664/6128 **Price** £1 99 **Supplier** Mastertronic, 8–10 Paul Street, London EC1

When it was released on the Commodore 64 a couple of months ago, *Speed King* quickly became one of my favourite games

Now out on the Amstrad, it's lost very little in the translation It s still fast addictive and packed with features

There are ten international circuits to test all your skills from the flat out Silverstone, to the treacherous turns of Daytona

The graphics are only a little cruder than on the 64 – still colourful and very nicely animated

There are quite a few more expensive race games around at the moment, but they offer very little more for the money

Speed King must be the bargain of the year

Program *Formula One Simulator* **Type** Simulation **Micro** 464 **Price** £1 99 **Supplier** Mastertronic, 8–10 Paul Street London EC1

Program *The Eidolon* **Type** Arcade Adventure **Micro** 464/664/6128 **Price** £9 99 tape £14 99 disc **Supplier** Activision, 23 Pond Street, London NW3

Program *Street Hawk* **Type** Arcade **Micro** 464/664/6128 **Price** £8 95 **Supplier** Ocean, 6 Central Street, Manchester M2 5NS

Program *Bactron* **Type** Arcade **Micro** 464/664/6128 **Price** £9 99 tape £14 99 disc **Supplier** Activision, 23 Pond Street London NW3

Program *Space Shuttle* **Type** Simulation **Micro** 464/664/6128 **Price** £9 99 tape £14 99 disc **Supplier** Activision, 23 Pond Street, London NW3.

Space Shuttle has been around for quite a while – notably on the Commodore 64 where it made its appearance around two years ago So, the Amstrad version has been a long time coming How has the conversion stood up?

Graphically, the game is excellent with a colourful display consisting of an out the cockpit view various control panels and mini displays and some excellent animation on satellite launches and the like

I assume it s also very realistic Which is to say dull

The whole point about flying the space shuttle is to follow a flight plan to the last detail So all you have to do is keep your flight path as near as possible to the pre-ordained version

Landings are quite gripping as you jockey to keep the machine on line, but even here the novelty soon pales

Real shuttle flying is probably quite exciting, since – as we know – the stakes are the highest imaginable When the only penalty for failure is to redo the launch sequence yet again and the only reward for success is the pretty screen display there s not a lot to commend it

Make believe spaceships – as in *Elite* or *Mercenary* – or ordinary aircraft simulations are much more exciting

Atari ST

Program *Hacker II* **Type** Adventure **Micro** Atari STs **Price** £24 99 **Supplier** Activision 23 Pond Street London NW3

Program *Tass Times in Tonetown* **Type** Graphic adventure **Micro** Atari STs **Price** £24 99 **Supplier** Activision, 23 Pond Street, London NW3

Program *Shanghai* **Type** Strategy **Micro** Atari STs **Price** £24 99 **Supplier** Activision 23 Pond Street, London NW3

Commodore

Program *Black Hawk* **Type** Arcade **Micro** C64 **Price** £1 99 **Supplier** Sparklers, Unit B11 Armstrong Mall, The Summit Centre South-

Pick of the week

The Pawn Shop

Program *The Pawn* **Type** Graphic Adventure **Micro** CBM 64 **Price** £19 95 **Supplier** Rainbird 74 New Oxford Street London WC1

This is the adventure for people who hate adventures At last transferred from the airy heights of the 68000 – QL ST, Amiga – to a micro within the reach of ordinary mortals *The Pawn* survives the transition not only well but astonishingly well

In many ways a straightforward text n graphics adventure, *The Pawn* is transformed by an unusually powerful parser (text interpretation system) and a deranged sense of humour None of your two word commands and endless I don t understand that – the most complex English sentences can be interpreted and acted upon and the computer will always come up with a sensible reply

You tend to forget that this is just a computer game, when commands like 'take the plant, plant it in the plant pot then get all the garden tools except the hoe and rake and go north" are acted on without a qualm by the computer

The plot involves your quest to remove a silver armband, and the complex conspiracies into which you are unwittingly drawn

Bob Stephenson s graphics are as charming and stunning as those on the ST/Amiga version and to make up for the lack of pull down scrolls there s an ingenious cameo feature which can insert miniature versions of the current location picture at the top of the screen

Forthcoming is a CBM 128 version on a single disc, which is faster and can display 80-column text Both versions include the off-the-wall novella "A Tale of Kerovnia" which will introduce you to Gringo Baconburger, the Roobikyoub Dwarves the whinging Princess and the ineffectual Prince Malcolm

The game s humour is usually based on in-jokes – the Irrelevant Maze, the Unimplemented REM Statement – and should have both hardened adventurers and neophytes chuckling into their mead For all that, this is a challenging adventure and sets new standards in parsers graphics, and programming sophistication on the 64

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Program *GBA Championship Basketball* **Type** Simulation **Micro** Commodore 64/128 **Price** £9 99 tape £14 99 disc **Supplier** Activision, 23 Pond Street, London NW3

Sports simulations came into vogue about two years ago, and there s still no sign that they re about to go out of favour

The latest is *Two-on-Two Basketball* from US company Gamestar producers of the wonderful *On-Field Football*

Distributed by Activision, *Basketball* is a tour-de-force with splendid animated graphics, excellent gameplay, and enough strategy to keep you interested

You can name your own team choose a second player as your team mate, allocate skills to dribbling, stealing, shooting and so on and then compete in a league against a number of teams at different skill levels

Great stuff

Program *Hacker II* **Type** Adventure **Micro** Commodore 64/128 **Price** £9 99 tape £14 99 disc **Supplier** Activision 23 Pond Street London NW3

Program *Snodgits* **Type** Arcade Adventure **Micro** Commodore 64 **Price** £1 99 **Supplier** Sparklers, Unit B11 Armstrong Mall, The Summit Centre, Southwood, Farnborough Hants GU14 0NP

Program *The Rocky Horror Show* **Type** Arcade Adventure **Micro** Commodore 128 (enhanced version) **Price** £9 99 tape £14.95 disc **Supplier** CRL, 9 Kings yard, Carpenters Road, Stratford, London E15

A special treat for Commodore 128 owners this week an enhanced version of *The Rocky Horror Show*, one of CRL s greatest games

It s an animated arcade adventure based on the cult movie and the graphics are stunning If you ve been wondering what use all that extra memory was here s a good answer

Program *Prodigy* **Type** Arcade Adventure **Micro** C64/128 **Price** £9.99 tape £14 99 disc **Supplier** Electric Dreams, 31 Carlton Crescent, Southampton SO1 2EN

Program *Sanxion* **Type** Arcade **Micro** Commodore 64 **Price** £9 95 tape, £14 95 disc **Supplier** Thalamus, Front Office First Floor, Advance Works 44 Wallace Road London N1 1PQ

Program *Assault Machine* **Type** Arcade **Micro** Commodore 64/128 **Price** £9 95 tape, £12 95 disc **Supplier** Nexus, DSB House 30 High Street Beckenham BR3 1AY

Program *Tass Times In Tonetown* **Type** Graphic Adventure **Micro** Commodore 64/128 **Price** £19 99 (disc) **Supplier** Activision, 23 Pond Street London NW3

Program *Shanghai* **Type** Strategy **Micro** Commodore 64/128 **Price** £14 99 (disc) **Supplier** Activision 23 Pond Street London NW3

Program *Street Hawk* **Type** Arcade **Micro** Commodore 64/128 **Price** £8 95 **Supplier** Ocean 6 Central Street Manchester M2 5NS

Commodore Amiga

Program *Hacker II* **Type** Adventure **Micro** Amiga **Price** £24 99 **Supplier** Activision 23 Pond Street, London NW3

Program *Tass Times in Tonetown* **Type** Graphic Adventure **Micro** Amiga **Price** £24 99 **Supplier** Activision, 23 Pond Street, London NW3

Program *Shanghai* **Type** Strategy **Micro** Amiga **Price** £24 99 **Supplier** Activision, 23 Pond Street London NW3

Spectrum

Program *Black Hawk* **Type** Arcade **Micro** Spectrum 48K **Price** £1 99 **Supplier** Sparklers Unit B11 Armstrong Mall The Summit Centre, Southwood Farnborough, Hants GU14 0NP



Program *Prodigy* **Type** Arcade Adventure **Micro** Spectrum 48/128K **Price** £7 99 **Supplier** Electric Dreams 31 Carlton Crescent, Southampton SO1 2EN

Program *Dragon s Lair* **Type** Arcade **Micro** Spectrum 48/128K **Price** £7 95 **Supplier** Software Projects, Bear brand Complex Allerton Road, Woolton, Liverpool Merseyside L25 7SF

Program *Street Hawk* **Type** Arcade **Micro** Spectrum 48/128K **Price** £7 95 **Supplier** Ocean, 6 Central Street Manchester

One of the longest-running sagas in the software business has been the coming soon story of Ocean s *Street Hawk* Well it s here at last and sadly it must be said that it wasn't worth the wait

You drive this motorbike, see And the screen scrolls from top to bottom while other vehicles drive from bottom to top

Some of these vehicles are baddies which you should zap with your laser If you kill civilians, the police come after you If you hit anything you lose damage points

Every once in a while, you get a shift of scene to the outside of a liquor store (an off licence, to you and me)

This must be a big store because it takes about ten blokes to rob it Their punishment for this villainous activity is disintegration with your laser Then it s back on the bike for more car shooting

Frankly, it's awful The graphics are nice, but sooo slow When you're supposed to be doing 120 mph the screen crawls along A granny in an electric wheelchair would give *Street Hawk* a good run

Superficially similar to *Spy hunter*, but nowhere near as good, *Street Hawk* should have been buried and forgotten

QL/Brother explained

Further to the problems concerning connection between the Sinclair QL and the Brother EP44 printer (*Popular*, May 1 and Letters, July 31), I too have sweated blood trying to achieve the desired results

The EP44 is supplied in many different character versions, not all of which are shown in the handbook and dependent on the country of purchase and this article may well be helpful to overseas readers

Before selecting the final date code settings (7-bit 8-bit or T/W) for the EP44 and the *Install Bas* data for *Quill* it is a good idea to switch the EP44 to terminal mode and then run the simple Program X, to establish the character set available in each data code setting Compare with the handbook to find out which version of the EP44 you have (the 7-bit setting is probably best disregarded for the QL)

If all the characters required are printed in the T/W setting then this is the best choice being the only way to achieve sub- and superscript

The best option in my opinion, is to utilise the 8-bit mode which gives you a plethora of different characters, although not the same set which is available when using the EP44 as a typewriter These characters are broadly the same as those listed in the concepts section of the QL manual (table 3).

In 8-bit mode of course super script and subscript are not available, but this is a minor disadvantage The *Install Bas* data for this mode is then acceptable in the form recommended by Barry Ashfield (May 1) but I am surprised he makes no use of a 'bold' function which I find particularly useful

The only essential translation in the *Install Bas* routine is Barry Ashfield's Translate 1 to enable the £ sign to be printed normally I would recommend that the *Install Bas* data (table two) be used for the 8-bit mode setting, with additional translations to suit individual needs

Finally, in case of difficulties, I have always found the staff of Brother in Manchester (061 330 6531) to be very helpful particularly Dave Stockley of Brother International.

Jim Bissett

Table 1 EP44 Settings

Baud Rate	1200
Bit Length	8
Parity	N
New Line	CR
Code (run program in all 3)	
ER	Y

Table 2 Install.Bas

	7 Bit & T/W Modes	8-Bit Mode
Driver Name	EP44	EP44
Port	ser1	ser1
Baud Rate	1200	1200
Parity	None	None
Lines/Page	59 (or to suit)	59 (or to suit)
Characters/Line	80	80
Continuous Forms	Yes	Yes
End of Line Code	CR	CR
Preamble Code	None	None
Postamble Code	None	None
Bold On	Del	Def
Bold Off	Del	Def
Underline On	ESC 'E	Def
Underline Off	ESC 'R	Def
Subscript On	ESC 'U	None
Subscript Off	ESC U	None
Superscript On	ESC D	None
Superscript Off	ESC 'D	None
Translate1	£ 36 (if £ avail.)	£ 168
Translate2 to Translate10	(as desired)	(as desired)

Program X

```
10 BAUD 1200
20 OPEN#8 ser1
30 FOR n=32 to 255
40 PRINT #8,chr$(n)
50 NEXT n
60 CLOSE#8
```

Table 3 – character differences

Decimal	Keying	Chr (QL)	Chr (EP44)
96	£	£	[illegible]
127	Shift ESC	©	none
128	Ctrl ESC	ä	[illegible]
129	Ctrl Shift 1	ã	[illegible]
130	Ctrl Shift	å	[illegible]
131	Ctrl Shift 3	é	[illegible]
132	Ctrl Shift 4	ö	[illegible]
133	Ctrl Shift 5	õ	[illegible]
134	Ctrl Shift 7	ø	[illegible]
135	Ctrl	ü	[illegible]
136	Ctrl Shift 9	ç	[illegible]
137	Ctrl Shift 0	ñ	[illegible]
138	Ctrl Shift 8	æ	[illegible]
139	Ctrl Shift –	œ	[illegible]
140	Ctrl	á	[illegible]
141	Ctrl –	à	[illegible]
142	Ctrl	â	[illegible]
143	Ctrl /	ë	[illegible]
144	Ctrl 0	è	[illegible]
145	Ctrl 1	ê	[illegible]
146	Ctrl 2	ï	Æ
147	Ctrl 3	í	[illegible]
148	Ctrl 4	ì	[illegible]
149	Ctrl 5	î	[illegible]
150	Ctrl 6	ó	[illegible]
151	Ctrl 7	ò	[illegible]
152	Ctrl 8	ô	[illegible]
153	Ctrl 9	ú	[illegible]
154	Ctrl Shift	ù	[illegible]
155	Ctrl	û	[illegible]
156	Ctrl Shift	ß	[illegible]
157	Ctrl –	¢	[illegible]
158	Ctrl Shift	¥	Pt
159	Ctrl Shift /	`	[illegible]
160	Ctrl Shift 2	Ä	[illegible]
161	Ctrl Shift A	Ã	[illegible]
162	Ctrl Shift S	Å	[illegible]
163	Ctrl Shift C	É	[illegible]
164	Ctrl Shift D	Ö	[illegible]
165	Ctrl Shift E	Õ	Ñ
166	Ctrl Shift F	Ç	[illegible]
167	Ctrl Shift G	Ü	[illegible]
168	Ctrl Shift H	Ã	[illegible]
169	Ctrl Shift I	Ñ	[illegible]
170	Ctrl Shift J	Œ	[illegible]
171	Ctrl Shift K	[illegible]	[illegible]
172	Ctrl Shift L	[illegible]	[illegible]
173	Ctrl Shift M	[illegible]	[illegible]
174	Ctrl Shift N	[illegible]	[illegible]
175	Ctrl Shift O	λ	[illegible]
176–224	Various	Various	no
226	Alt Capslock	none	[illegible]
230	Shift Ctrl Lock	none	[illegible]
237	Ctrl F2	none	[illegible]
241	Ctrl F3	none	±
246	Shift F4	none	[illegible]
248	F6	none	[illegible]
253	Shift Tab	Back Tab	[illegible]

NEXT WEEK

Special Supplement The Commodore 64

Commodore's Connoisseur's Compendium – this year's package deal on the new 64C machine Chris Jenkins takes his pack to pieces ... disc drives the 1541C compared to First-Line's independent Commodore 64 drive, the Enhancer 2000

Plus software galore programming utilities – which will suit you best? Wigmore's *Artist 64* – how does it compare to current graphics programs? *Print Shop* from Precision – a document designer par excellence? *The Pawn* arrives on the 64 – has the standard been maintained?

Tune in next week for the answers

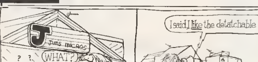
Chess Board

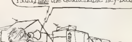
More moves in *Popular* vs *Colossus* game and Martin Bryant's monthly column A must for chess fans

Games

Feast your eyes on these reviews *Deep Space* and *Arena* from Psygnosis; *Aliens* and *Dandy*

Hackers






FROST BYTE
by
Mikro
G E N



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